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PRESENT STATUS OF THE UROLOGY OF WAR *

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It is the fortune of war that great renown is the lot of those who happen to be among the first of the wounded or the killed. But after these first few the names are lost in numbers. To this rule the members of the Medical Corps and notably of the Medical Reserve Corps of the United States Army have been a glorious exception. They were literally the first at the front, they were the first to shed their blood for their country. Hundreds of them were sent silently to the support of the British as early as May and June of last year, and from that time to this they have paid their toll of dead and wounded—they have been gassed, they have suffered the interminable daily hardships of mud and privation, of gas and shell fire. Their valiant action, their fidelity to duty are unrecorded. We may well hope that the glorious histories of these first American victims and heroes of the Great War shall find a place on the first page of the volume that shall commemorate the undying heroism of the surgeons of the United States Army in the war for Liberty.

Those of us who arrived later in France, after the American Expeditionary Forces had begun to establish themselves there, looked around for work to occupy a urologist. The situation we found was unexpected. In the armies of our allies there is practically no urologic surgery as such. Among the English the urologic surgeons have all become general surgeons. Cuthbert Wallace is a general in France. Pardoe and Freyer are doing general surgical and administrative work for the army in the British Islands. Among the French this history repeats itself: Heitzboyer is especially interested in fractures; Marion is famous for his work in roentgen localization of foreign bodies; Legueu, to be sure, retains his place at Necker in a purely urologic service; Cathelin devotes most of his time to urologic work; Rochet has published a series of operations for the reconstruction of damaged genitals. Those men in both countries whose qualifications were chiefly in the treatment of venereal diseases have ceased being surgeons altogether and are working in hospitals for the treatment of venereal and skin diseases, for venereology in France is almost if not quite synonymous with syphilology.

The reason for this situation is to be found in the material that presents itself to the surgeon's hand. At the front and even at the evacuation hospital (the casualty clearing station of the British army) there is no genito-urinary surgery as such. Penetrating wounds of the abdomen which involve the kidney or the ureter usually inflict wounds of far greater importance on such adjacent organs as the lung, the gastro-intestinal tract, the liver or the spleen. Intraperitoneal wounds of the bladder are said to be always associated with wounds of the intestine. Extraperitoneal wounds are only a part of an injury which may be a compound fracture of the thigh or of the pelvis and which not infrequently involves the rectum as well. Even the genitals are scarcely ever wounded without grave injury about the thigh or pelvis. Moreover, wounds of the urinary organs are relatively rare. Thus, 232 wounds of the abdominal viscera are classified by Rouvillois[1] as: extraperitoneal visceral wounds, 15, of which 8 involved the kidney; wounds of both thorax and abdomen, 48, of which 4 involved the kidney; intraperitoneal wounds, 169, of which 6 involved the kidney, a total of 18, or 7.7 per cent., of kidney wounds. Among 2,121 cases of abdominal wounds reported by English authors and tabulated in the Manual of the Division of Urology of the American Expeditionary Forces, there were 155 kidney wounds, or 7.3 per cent. of the total. Bladder wounds are relatively even rarer. They constitute only 4 per cent. among the 965 laparotomies reported from casualty clearing stations by General Cuthbert Wallace, and, in 1917, Legueu was able to report only forty-three cases of bladder wounds.

Thus, at the front, the wounds of the urinary organs inevitably fall into the hands of the general surgeon, and at the base the services of Legueu and Cathelin are, I believe, the only ones to which wounds of the genito-urinary tract are especially directed. Nevertheless, the total number of wounded in this war has been so great that our specialty, like every other one, has benefited by the experience. I shall try to enumerate some of the conclusions that have been reached thus far, although I must admit at the outset that my experience is all by hearsay. I have no personal experience to record, and although it is the intention of the Army authorities to establish such special centers as may be necessary for the skilled treatment of lesions of the genital and urinary tract, the occasion for this has not yet arisen.

WOUNDS OF THE KIDNEY

The war injuries to the kidney may be classified as shell wounds, bullet wounds (including shrapnel), stab wounds and ruptures. Shell wounds as a class

* Chairman's address, read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Rouvillois: Bull. de la Soc. de chir. de Paris, 1916, 42, 708.

are large and destructive and almost invariably associated with other graver visceral injuries, for even though the kidney is completely disorganized, the primary danger to life is not usually from bleeding of the vessels of this organ. They usually require primary nephrectomy.

Bullet wounds, if they involve the hilum, usually sever the vessels of the pedicle and call for nephrectomy. If parenchymal, they either simply traverse the kidney, in which case it may usually be saved by excision of the tract of the wound followed by packing; but bullets may also cause rupture of the kidney requiring nephrectomy.

Stab wounds are extremely rare, and the few reported cases have been characterized by severe primary hemorrhage.

Subcutaneous rupture of the kidney is similar to the like conditions as seen in civil practice. The proper treatment appears to be conservative at first with a later operation to evacuate the perirenal hematoma and to forestall secondary infection.

Pathology.—Parenchymal wounds are classified as perforating, tangential or explosive (causing rupture of the kidney). The kidney tissue immediately about the wound is contused, but more remote portions of the kidney remain normal. It is not to be forgotten that the arteries of the kidney are terminal; hence division of an artery implies death of the portion of the kidney tissue distal to the point of arterial rupture. As has been stated above, wounds of the kidney pelvis and of the kidney pedicle are almost synonymous. A few bilateral kidney wounds have been recorded; they were all fatal.

Cross-section through second lumbar vertebra, showing relations of kidneys.

Clinical Picture.—The patient arrives at the evacuation hospital labeled "wound of abdomen," or of chest, or of buttock, or of thigh. The patient's general condition is of more immediate importance than his local one. Shock, hemorrhage, evidence of injury to intestine or lung, or even the intraperitoneal hemorrhage from spleen or kidney are the surgeon's immediate concern. A wound of the kidney is suspected if the entrance or exit of the bullet has been through the loin or if there is hematuria; but the accurate diagnosis is usually only made on the operating table. In times of push the roentgen ray is relatively little used, and even when it is used neither the roentgen ray nor the wounds of entrance or exit give an exact idea as to the course of the bullet, which may have been deflected by contact with bone.

Symptoms.—Apart from the symptoms due to shock, exposure and complicating injuries, free hemorrhage from a wound in the loin is suggestive of injury to the kidney, and hematuria is absent only if a ureter is completely divided or obstructed by clot or missile or if the wound does not invade the renal pelvis. The hematuria seems never to be so severe as to cause clotting of blood in the bladder. Retention of urine is common. The later symptoms are due to infection. Gas gangrene, sepsis, extravasation of urine and secondary hemorrhage are the causes of death at the base hospital. Secondary hemorrhage is not uncommon in the second or third week, and may occur as late as two months after the injury. It is much more formidable than the primary bleeding because of its severity, its marked tendency to recurrences and the association of sepsis. I have seen one case of renal stone as a result of infection following the wound in the kidney.

Diagnosis.—All patients with abdominal injuries should be catheterized at the first opportunity unless they can urinate freely. The urine thus obtained should be examined for blood. As stated above, wounds of the loin, especially if they bleed freely, are suggestive of injury to the kidney. When the diagnosis is obscure, it is cleared up by exploratory operation. In quiet times the cystoscope may be used with advantage at the evacuation hospital; but during a push there is no time for the employment of such instruments of precision and cystoscopy is generally employed only at the base.

Treatment.[2]—1. Inspect urine for blood (catheterize if necessary).

2. Treat shock in the usual manner, by warmth and transfusion.

3. If in doubt whether or not to operate, the most prudent decision is usually the wisest.

4. If in doubt whether to open the abdomen or loin first, open the loin (see No. 6).

5. The loin incision should be transverse and extend approximately to the edge of the rectus. It may be enlarged by a vertical transrectus incision or by vertical incision along the outer border of the erector spinae muscle long enough to permit division of all muscular and ligamentous attachments to the last rib. The twelfth dorsal nerve and artery may be avoided by placing the transverse incision a finger's breadth below the rib. Thus also one avoids the danger of inadvertently entering the pleura, through mistaking the eleventh for the twelfth rib.

6. If there is a wound of the loin and hematuria, or if the wound plainly leads to the kidney, enlarge it transversely, deliver the kidney and examine the hilum for lesions of the renal vessels.

(*a*) If the main artery or vein, or the upper main branch of the artery is wounded, perform nephrectomy.

(*b*) If smaller arteries or the lower branch of the renal artery are wounded or the renal wound is a relatively slight one, there are three alternatives. For wounds that are not very extensive or ragged and do not involve any great destruction of the arterial system of the kidney it may be wise to do nothing more than pack the loin down to the kidney. But in case

2. The paragraphs on treatment are quoted from the Manual of the Division of Urology, A. E. F., at present in press, in the writing of which the director of the division of urology, Major Hugh H. Young, M. R. C., has kindly attributed to me a certain share and to which I am indebted for many other observations in this paper.

of persistent hemorrhage, extensive contusion, presence of foreign bodies or division of arteries, the kidney demands the surgeon's attention; the renal wound may be packed or a portion of the parenchyma excised and sutured. At the evacuation hospital where such primary operations are usually performed, conditions are often such as to prohibit prolongation of the operation for the purpose of resecting and suturing the kidney or searching for shell fragments or bullets. Resection is, however, the ideal operation in such cases—an ideal which has been realized in a few cases and one which the surgeon should always bear in mind. When partial nephrectomy is performed, the excised portion should include all that part of the kidney parenchyma which is deprived of circulation by the division of its artery.

(*c*) A small tube should be left in the pelvis of the kidney two days, if this has been opened, in order to evacuate blood clots and to hasten the return of kidney function by removing intrapelvic pressure.

(*d*) Always open the peritoneum in front of the colon in order to examine the adjacent viscera.

(*e*) Drain and suture the wound in the usual manner.

7. If more than one third of the kidney is contused, perform complete nephrectomy. If less, resection may be considered.

8. If hematuria suggests renal injury, but the wound is remote from the loin, the decision in favor of or against immediate operation should be based on the following data:

(*a*) If the patient is going to die of primary renal hemorrhage, he is likely to do so before reaching the dressing station.

(*b*) Though exploration of renal wounds usually starts a fresh parenchymatous hemorrhage, it discloses the fact that the primary bleeding has already stopped.

(*c*) Therefore, unless an external wound leads directly to the kidney region, the presence of hematuria or of retroperitoneal hematoma is no indication for immediate operation.

9. A retroperitoneal hemorrhage discovered in the course of a laparotomy may be disregarded (it often does not arise from the renal vessels at all) unless it is of enormous size, in which event it should be evacuated extraperitoneally, *before* the intestines are much handled, for it has been found that immediate grave shock results from turning the patient over and operating on his loin after laparotomy.

10. Transperitoneal nephrectomy is generally condemned.

Treatment at the Base.—All secondary operations should be preceded by *cystoscopy* to ascertain the condition of the opposite kidney and *fluoroscopy* to locate fragments of bone or missile.

Large hemotomas should be evacuated to forestall infection.

Secondary hemorrhage calls for transfusion and usually for prompt nephrectomy unless other complications prohibit this; for the hemorrhage is likely to recur and the effect of each return of bleeding is cumulative.

Sepsis is combated according to general principles of drainage and antisepsis.

Persistent *urinary fistulas* in the loin should be treated by the insertion of a ureteral catheter up to the pelvis of the kidney. In a number of cases this treatment, with daily injection of the kidney pelvis by 1 per cent. silver nitrate solution has resulted in closure of the fistula. The catheter may be left in place for an indefinite period if changed every fourth or fifth day. If healing is to occur, this may be expected within ten days.

If the fistula fails to heal, the kidney may be explored for the purpose of reestablishing the urinary flow by plastic operation or for nephrectomy, if the opposite kidney is proved sound.

The immediate mortality of operations at British casualty clearing stations for uncomplicated renal wounds has been about 25 per cent. due to shock and hemorrhage, and the added shock of anesthesia and operation. The milder, unoperated cases doubtless have a very low immediate mortality. The complicated cases have an immediate mortality of 65 per cent.

The late mortality is due to secondary hemorrhage, sepsis, renal infection and stone, and various wound complications not referable to the kidney. Apparently at least 20 per cent. of renal wounds reaching the base result in grave permanent renal lesion, or the patients die septic.

An extraction of missiles is performed after the usual localization. Any doubt as to whether the missile is actually within the kidney pelvis or not may be settled by pyelography. It is not to be forgotten that the disturbance of old adhesions about a wounded kidney may result in a tear of the colon or of the diaphragm.

WOUNDS OF THE URETER

Wounds of the ureter are usually complete and are disclosed some days after the injury either by extravasation of urine or the appearance of urine in the discharges from the wound. In a few cases a divided ureter has been found in the course of operation. As other lesions predominate, the procedure followed has been to drain the ureteral wound or at most to dislocate the severed end of the ureter up to the parietal wound. Suture of the ureter has not been attempted, and the loss of tissue is likely to be such as to render it impossible.

In a few instances urinary fistula due to partial division of the ureter has been healed by the indwelling catheter with daily pelvic lavage. In one such case, Heitzboyer diagnosed the existence of a ureteral fistula from the fact that the ureteral catheter passed to the kidney pelvis and fluid injected through this simply filled the pelvis without issuing from the wound. The fistula healed in eight days with the ureteral catheter tied in.

Primary nephrectomy is not advisable for wounds of the ureter, since it is an unnecessary added shock. Secondary nephrectomy may be performed after functional tests have been made of the other kidney.

BLADDER WOUNDS

The Manual of Urology classifies bladder wounds as:

I. Intraperitoneal Injuries.
  (A) Wounds.
    I. Uncomplicated.
    II. Complicated by:
      (*a*) Perforations of other viscera.
        1. The small intestine.
        2. The colon.
      (*b*) Fractures or injuries of bones.
      (*c*) Injury to large blood vessels.

(B) Ruptures by concussion.
I. Complicated.
II. Uncomplicated.
II. Extraperitoneal Injuries.
(A) Wounds.
I. Uncomplicated.
II. Complicated by:
(a) Injury to rectum.
(b) Injury to deep urethra or prostate.
(c) Fractures of the bony pelvis or femur.
(d) Injury to important blood vessels.

They may be due to shell, bullet, stab or rupture. The distinction between intraperitoneal and extraperitoneal wounds is an artificial one, for in many if not in most cases the missile causes both types of injury. Intraperitoneal wounds are almost always overshadowed by associated visceral injury, usually to the small intestine and sigmoid; extraperitoneal wounds, by the injuries tabulated above.

Symptoms.—There is usually an irritability of the bladder, a frequent desire to urinate as the result of which the patient either passes no urine at all or only a small amount of bloody urine in which feces may be found if there is an injury to the rectum. Later the signs of peritonitis or pelvic cellulitis appear.

Diagnosis.—As in the case of abdominal wounds, the operation on all pelvic wounds should be preceded by catheterization if the patient is unable to urinate. Exploratory operation confirms the diagnosis of wound of the bladder. Cystoscopy is usually not practicable at the evacuation hospital. Indeed, in many cases, the wound of exit is so large as to render the diagnosis of bladder injury obvious enough and at the same time to prohibit the filling of the bladder for the purpose of cystoscopy. All exploratory abdominal operations include an examination of the vault of the bladder. The injection test for the diagnosis of either wound or rupture of the bladder has been discarded as both deceptive and dangerous.

Treatment.—The toilet of the wound is performed in the usual manner and such accessory incisions made as seem necessary to disclose all of the injuries. The wounded bladder should be carefully swept with the finger in order to clear it of clots, foreign bodies or shell fragments. Intraperitoneal wounds should be closed tight and no suprapubic drainage employed unless the wound is so large and irregular as to preclude satisfactory closure. The irregularities of treatment inevitable in transport from the evacuation hospital to the base make the indwelling ureteral catheter extremely unsatisfactory.

Patients have done well after intraperitoneal wounds when not catheterized at all. In most instances, however, the catheter has been employed every four hours for four days after operation. Extraperitoneal wounds are drained either through the tract of the wound itself or by suprapubic cystostomy. Wounds involving the rectum have in many instances healed under simple suprapubic drainage. Twelve of Legueu's fifteen cases healed in this manner. The English prefer to perform a temporary colostomy of the transverse colon (in order to keep the colostomy wound well away from the bullet wound). Extraperitoneal wounds cannot usually be sutured satisfactorily.

Prognosis.—The mortality of bladder wounds is even higher than that of kidney wounds. Cuthbert Wallace reports a mortality of 56 per cent. in twenty-five cases. Patients die of shock, of hemorrhage from the iliac or femoral vessels, of peritonitis due to intestinal injury or of pelvic cellulitis, which is very difficult to control on account of fracture of the pelvis, which is a common complication.

PARALYSIS OF THE BLADDER DUE TO SPINAL INJURY

Notable progress has been made in the treatment of cases of paralysis of the bladder due to spinal injury. It is well known that most of these patients die under ordinary circumstances by the so-called "ascending" urinary infection, and we all realize that catheterization does not prevent this type of infection. Indeed, the indwelling catheter was at first the instrument of choice for many surgeons until they learned that the paralyzed bladder usually behaves very badly under this form of treatment, immediate and severe infection being the usual result. The next step was to attempt suprapubic drainage, but this prevents ascending infection little better than does the catheter.

Thomson-Walker has pointed out that although the immediate result of paralysis of the bladder is only a retention of urine, this retention gives place to a complete incontinence of urine after an interval. This interval averages sixty days, the extreme limits being, as observed by Thomson-Walker, twenty-four hours and eighteen months. Such being the case, Major Besley, M. R. C., as a result of his experience with the British army, suggested that the patient would be safer if not catheterized at all, and such is the accepted form of treatment today. The patient with a paralyzed bladder should absolutely not have a catheter passed. The bladder will promptly distend and overflow. It will not rupture, and although infection may occur, this is likely to be mild. In due course the retention gives place to incontinence, and in spite of the effects of back pressure on the kidneys and ureters, these patients are said to do very much better than those that are catheterized.

WOUNDS OF THE URETHRA AND PROSTATE

Perineal wounds of the urethra are likely to carry away the whole perineal body, leaving a cloaca which in most instances defies repair. No new surgical practice has developed in the treatment of these wounds, whether large or small, excepting that in addition to the colostomy which is employed to keep the rectal wound clean, suprapubic cystostomy is favored in order to encourage the healing of the urethral wound. Suprapubic drainage is, indeed, much more satisfactory than any perineal drainage in most cases.

WOUNDS OF THE EXTERNAL GENITALS AND ANTERIOR URETHRA

Cathelin and Rochet have reported truly extraordinary results in the preservation of the partially amputated penis. They advise the most conservative surgery until the wounds have granulated. Then the two cut surfaces of the penis are freshened by incision of all scar in such a manner that the penis is reconstituted by suture of the cut surfaces of corpora cavernosa and corpus spongeosum and the urethra. A suprapubic fistula is established in order to encourage prompt healing of the wound. In one such case Rochet was able to save the glans penis, although this had been completely severed and was attached only by the preputial skin. At the time of the plastic operation it lay embedded in a mass of granulations in a large

wound in the region of Scarpa's triangle about 10 cm. distant from the extremity of the penis. In another case the completely amputated penis had become adherent in a very bad position under the pubes. It was freed by division of the suspensory ligament and transplanted into the scrotum, thereby producing a satisfactory urinary channel.

Scrotal and testicular wounds are treated with the utmost conservatism. After the casting off of sloughs, the scrotal skin rapidly covers over the testicles in a manner with which we are familiar in civil practice.

IRRITABILITY OF THE BLADDER

The one medical condition (apart from trench nephritis) that is of interest to the urologist is bladder irritability. This is an extremely common condition in military organizations whose members are exposed to privation and cold for any length of time. The symptoms may, of course, be due to gonorrhea, tuberculosis, stone, etc., but it is usually purely functional and is relieved by rest in bed for a week or two, aided by sounds and instillations.

CONCLUSIONS

This sketch of the present status of the urology of war will doubtless have no more than a temporary value. It is only within the past six months that surgeons have learned to employ the primary suture of wounds, and the extraordinary results obtained from this in all kinds of wounds will certainly react on our department of urology. In the future, many kidneys will doubtless be saved by immediate resection and many lives saved by immediate suture of the bladder in cases which up to the present time have been subjected to the dangers of prolonged drainage and the resulting infection.

Throughout this war, however, the specialty of surgery of the genito-urinary organs will doubtless continue in large measure as a province of general surgery. The expert knowledge of the specialist will be chiefly useful at base hospitals; but the urologist himself will be the chief gainer, for he will be pushed into general surgery of the most active sort and will thereby broaden his horizon and his surgical capacity. For us, as for all other surgeons, this is a glorious day. The miseries of the present generation will react happily on the generations to come, in surgery as in many other departments of human activity. Not one of you, I am sure, but feels a thrill of pride and joy at his privilege in taking a part, however small, in this renaissance of our art. Indeed, the American Expeditionary Force is a force of crusaders. One of the chief results of the war will unquestionably be a more intimate commingling of the civilizations of Europe and America, illuminated by the new knowledge which we are all acquiring while fighting shoulder to shoulder in the Army of Liberty.

Lutz Completes the Biologic Cycle of the Schistosomum.—After three years of extensive research in northern Brazil, Prof. A. Lutz has traced the life cycle of the *Schistosomum mansoni* from the lateral-spined ovum to the adult parasite, through the intermediate hosts, fresh-water snails, to the definite host, rabbits, guinea-pigs and man, and reproduced the clinical picture anew. The work was started at the Instituto Oswaldo Cruz, and the detailed report is soon to be published in the *Memorias* of the institute. As this parasite is not known in southern Brazil, the commission had to seek it in its haunts along the rivers of the north. Bahia is a stronghold of this parasite.

NERVOUS AND MENTAL SYMPTOMS IN EXOPHTHALMIC GOITER*

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The intimate interrelationship of the endocrine glands and the nervous system is nowhere better illustrated than in the symptomatology of exophthalmic goiter. Though it is now generally agreed that in exophthalmic goiter we have to deal with a thyrointoxication, it is not surprising that the syndrome has been and still is described as a nervous disease, since many of the symptoms recognizable in this disease are admittedly due to disturbances of the neural and psychic functions. Of the four cardinal symptoms of exophthalmic goiter—tachycardia, struma, tremor and protrusion of the eyeballs—no less than three are due to abnormal innervations; and when the host of less striking manifestations of the disease is considered, it is clear that neuropathic and psychopathic phenomena predominate. Even in the disturbances often looked on as non-neural in origin—the changes in the blood, the metabolic disturbances, the disorders of endocrine glands other than the thyroid—there may later be found to exist a neural link. At any rate, at the present time, any study of the symptoms of exophthalmic goiter involves, in addition to a study in metabolism, an extensive inquiry in the domain of the pathologic physiology of the nervous system.

SYMPTOMS REFERABLE TO DISTURBANCES OF THE VEGETATIVE NERVOUS SYSTEM

Though in exophthalmic goiter both the cerebrospinal nervous system and the vegetative or autonomic nervous system (including the sympathetic system and autonomic system) exhibit deviations from normal function, it is to the latter system that the larger number of pathologic-physiologic phenomena are referable. This system, it will be recalled, through its neurones of mesencephalic, bulbar and spinal locations, synapsed with neurones the cell bodies of which are more peripherally situated in the ganglions of the sympathetic trunks and in the viscera themselves, innervates all the smooth muscle of the body, the heart muscle and all the secreting glands. Any symptom, therefore, in which there is neural disturbance of contractions of smooth muscle, or of heart muscle, or in which there is neural disturbance of glandular secretion, must be looked on as a symptom appearing in the domain of the vegetative nervous system.

Of the symptoms often met in exophthalmic goiter, let me recall to you some that come in this category. They include the following:

(a) In the head and neck:
1. Von Graefe's sign.
2. Dalrymple's sign.
3. Protrusion of the eyeballs.
4. Epiphora in some, dry eyes in others.
5. Loewi's phenomenon.
6. Excess, or lack, of saliva.

(b) In the respiratory system:
1. Asthmatic attacks.
2 Dyspnea, or tachypnea.

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

(c) In the circulatory system:
1. Tachycardia.
2. Pulsus irregularis respiratorius.
3. Vasomotor angina.
4. Subjective palpitation.
5. Transitory changes in blood pressure.
6. Vasomotor symptoms, especially temporary erythemas and dermographism.

(d) In the digestive system:
1. Gastrospasm and pylorospasm.
2. Gastric hyperacidity or hypacidity.
3. Spastic constipation.
4. Unmotived watery, painless, diarrheas and unmotived vomiting.

(e) In the urogenital system:
1. Pollakiuria, polyuria and oliguria.
2. Certain disturbances of menstruation and of lactation.
3. Certain disturbances of sexual libido and potentia.

(f) In the cutaneous glandular system:
1. Profuse sweating (and Vigouroux's sign, which is probably dependent on it).

This list is long enough and its contents are familiar enough to convince us of the prevalence of autonomic symptoms and signs in exophthalmic goiter. I might have added to it certain changes in the blood and certain metabolic changes that many believe depend on abnormal autonomic innervation.

Though any one or several of the preceding symptoms may be present in a patient suffering from exophthalmic goiter, they are never all present in the same patient. Indeed, many of the symptoms (for example, epiphora and dry eyes, sialorrhea and xerostomia, constipation and diarrhea) are opposites, the presence of one excluding that of the other. As everyone knows since the researches of the great English physiologists, Gaskell and Langley, there is a double innervation in all autonomic domains; each bit of involuntary muscle and each secreting gland is controlled by two sets of neurons, the two sets being apparently reciprocally antagonistic in their effects when stimulated. Thus, stimulate one set of fibers and the heart-rate is accelerated, stimulate the other and the heart-rate is slowed; or stimulate one set of nerves supplying the salivary glands and sialorrhea results; stimulate the other set and xerostomia results. Similar findings might be cited throughout all the domains under autonomic control. Normally, there seems to be a fairly stable balance between the innervations of one set and those of the other set of fibers, this balance being temporarily and adequately upset from moment to moment by certain stimuli correspondent to physiologic needs. That in some persons, constitutionally inferior, there may be a special sensitiveness to one set of innervations at the expense of the other set seems very likely from the careful studies that have been made by clinicians; the conception of vagotonia on the one hand and that of sympathicotonia on the other, postulated by Eppinger and Hess, are doubtless by this time well known. Certain stimuli we know will pick out one set of fibers and leave the other set relatively unaffected; thus epinephrin is generally sympathicotropic, increasing the susceptibility to sympathetic innervation in practically all domains, whereas pilocarpin and atropin are vagotropic, the former favoring stimulation in most craniosacral autonomic domains, the latter, in large doses, paralyzing the same fibers.

In exophthalmic goiter we meet with very peculiar conditions. We may find in one and the same patient some symptoms referable to stimulation of sympathetic fibers (tachycardia and protrusion of the eyeballs) and some symptoms referable to stimulation of craniosacral autonomic fibers (profuse sweating; unmotived watery diarrhea). In other words, we often meet with a mixture of the phenomena of sympathetic stimulation in one domain with the phenomena of craniosacral autonomic stimulation in another domain. At times, it is true, patients are met with in which the unusual phenomena appear predominantly due to sympathetic stimulation; or, again, others are met with in which the craniosacral autonomic innervations seem to be greatly in excess and relatively unmixed. These represent the so-called sympathicotonic types and vagotonic types, respectively, of exophthalmic goiter, as described by contemporary writers, types the origin of which is now the subject of much speculative consideration, as may be gathered from the interesting contribution by Pottenger.[1] Though the facts are as yet insufficient to warrant any dogmatic assertion regarding the pathogenesis of the symptoms referable to autonomic domains in exophthalmic goiter, it is very certain that the careful analysis of these symptoms and the consideration of their relations to one another have awakened an entirely new interest in visceral neurology and bid fair to stimulate researches in a region in which further investigation promises to be particularly rewarding.

PHENOMENA REFERABLE TO THE PERIPHERAL NEURONS OF THE CEREBROSPINAL NERVOUS SYSTEM

Toxic-degenerative processes involving the peripheral neurons (both motor and sensory) of the cerebrospinal nervous system are only occasionally met with in exophthalmic goiter in a degree that arrests the attention of clinical observers. That such processes do sometimes arise in the course of exophthalmic goiter, however, is clearly shown by a study of the literature of the subject. Thus Diller has reported a rapidly developing and fatal case of toxic multiple neuritis, the patient suffering from general hyperesthesia and exhibiting an extensive atrophy of the voluntary musculature. The concomitant exophthalmic goiter may, of course, have been merely coincidental rather than causal, though Diller evidently favored the view that he was dealing with a thyrotoxic neuritis.

In the domain of the cerebral nerves, palsies have been met with not infrequently in exophthalmic goiter. The literature on the subject has been analyzed by Sattler (1909), by Kappis (1911) and, more recently, by Heuer (1916). Though any one of the cerebral nerves (except, possibly, the nervus accessorius) may be injured in exophthalmic goiter, it is the nerves innervating the eye muscles, namely, the nervus oculomotorius, the nervus trochlearis and the nervus abducens that are most frequently involved. Thus Kappis has collected about forty cases in which ophthalmoplegias of varying grade were encountered in exophthalmic goiter in the absence of any other involvement of the cerebral nerves. Isolated palsies of the nervus facialis are sometimes observed. Most interesting of all in the disease are the cases of palsy in the domain of several cerebral nerves, yielding the clinical picture of an acute, a subacute, or a chronic, bulbar paralysis. It has sometimes been difficult, apparently, to differ-

1. Pottenger, F. M.: A Study of the Symptoms of Exophthalmic Goiter, Endocrinology, 1918, 2, 16.

entiate cases of "bulbar paralysis with anatomic lesion" from the cases of myasthenia gravis (or "bulbar paralysis without anatomic lesion") not so very infrequently met with in association with exophthalmic goiter. Further study is needed to decide the importance or unimportance of thymus hyperplasia in these groups of cases. What has always surprised me most in the study of patients exhibiting exophthalmic goiter, as far as the peripheral nerves are concerned, has been the constant presence of extensive evidence of disturbed function of the peripheral autonomic nerves in contrast with the apparent absence of evidence of disturbance of function (except in rare instances) of the peripheral cerebrospinal nerves.

PHENOMENA REFERABLE TO THE NEURON SYSTEMS OF THE BRAIN AND SPINAL CORD

Of the grosser organic lesions of the brain and spinal cord occasionally encountered in the course of exophthalmic goiter, none seems to stand in any direct relation of effect to thyrotoxic cause. Thus, tabes, myelitis, cerebral apoplexy, or brain tumor may sometimes occur in a patient who has exophthalmic goiter but no one would think of any other than an accidental relation existing. The same may be said also of diseases like chorea and epilepsy, when they occur in patients who suffer from exophthalmic goiter. With regard to epilepsy, however, it may be well to speak with some reserve. Despite clinical impressions, the evidence for an epilepsy of thyrotoxic origin is still too incomplete to permit of safe judgment. The remarkable fine tremor that is so characteristic of exophthalmic goiter is doubtless cerebral in origin, but we are as much at a loss further to explain its pathogenesis as we are to account for other pathologic tremors.

Most interesting to every internist are the neurotic and psychotic symptoms manifested by patients with exophthalmic goiter. The frequency of neurasthenic states, of anxiety states, and of phobic and obsessional states in patients suffering from the disease is notorious. Indeed, it is on account of the symptoms of such states that the patient most often applies, or is brought by a member of the family, to the physician for relief.

Outspoken psychoses (maniacal, melancholic, paranoid) are by no means uncommon in exophthalmic goiter, especially when there is a psychopathic heredity. Even in milder cases of exophthalmic goiter, complaints of nervousness, irritability, inability to concentrate, headache, insomnia, pains in the eyes, pressure in the head, throbbing of the vessels, internal quivering, hot flushes, fatigability, dyspnea, anorexia and nausea are very common.

The behavior of the patient is always more or less abnormal. Of this he may not himself be cognizant, though the abnormality is obvious to his family and friends and to the physician. The restlessness, the haste of movement and the overalertness of the patient are characteristic. It has often appeared to me as though the fundamental instinctive mechanisms on which the whole personality depends were functioning abnormally. Each instinctive mechanism has, as we know, a cognitive, an affective and a conative component; it involves a knowing, a feeling, and a striving. In exophthalmic goiter, it would seem as though the affective-conative processes were more involved than the cognitive.

And this view agrees well with what I have said regarding the marked involvement of the autonomic innervations of the blood vessels and the viscera in the disease. The intimate relations that exist between emotional states and visceral and blood-vascular innervations have long been appreciated; they form the basis of the James-Lange theory of the origin of the emotions. In how far the nervous symptoms and especially the pathologic emotivity of patients with exophthalmic goiter depend on a direct intoxication of the brain itself, and in how far on indirect effects on the higher nervous apparatus through an intoxication of the vegetative nervous system or of all the body cells in which the ultimate metabolic processes go on, we are too ignorant as yet to judge. I am personally inclined to lay more and more stress on injury to the lower and more primitive mechanisms.

ABSTRACT OF DISCUSSION

DR. JOSEPH BYRNE, New York: Regarding the simpler manifestations, as, for instance, the tachycardia, we are without explanation. We have explanations which seem to be nothing more than a crystallization of a difficult problem into a more or less simple form of statement to suit the needs of textbooks, but when we really want to get an explanation that explains we have to go farther into the subject so that no one would be interested, except, perhaps, the man who studied it himself. In regard to mechanisms, some of the work that I have done has been in connection with the paradoxical pupillary phenomenon. In experiments on the autonomic system, if we paralyze the sympathetic by removal of the supercervical ganglion we get a most extraordinary phenomenon. During the first twenty-four hours after removal of the ganglion we get nothing. The pupil is smaller than the other, but under certain conditions it becomes the larger of the two, and that is why it is called paradoxical. This phenomenon has not been explained to date and some of the best physiologists have worked on it. Anderson has given the explanation you will find in the books today, and he simply says that it is due to increased muscle irritability, which is merely evasion of the question. A curious thing that I found out about these mechanisms is that if you cut the sympathetic in the neck it takes seven days before this paradoxical phenomenon will appear, whereas, if you cut the long ciliaries, the length of time required will be the same as when the ganglion has been removed, viz., twenty-four hours. In my experiments I attempted to induce this phenomenon by applying stimuli directly to the nerves of the iris and ciliary body, but could not get any results. This corroborates other men's work. This thing is not different from the phenomena that take place in the vessels of the rabbit's ear after section of the sympathetic. Immediately after the section there is dilatation of the vessels, which, under certain conditions, gives place to constriction, which seems to be due to the hyperactivity of neurons situated peripherally near the effectors. One word about the existence of these peripheral neurons: Are they there? Anatomists say yes; but when we get farther with the anatomy we find that they are not neurons at all, but a network or syncytium. Then we ask again: What are the myoneural junctions? and we are up against the same question all the way through. To me it seems that the tachycardia, exophthalmos and other signs in hyperthyroidism may find explanation along lines similar to those hinted at here for the explanation of the paradoxical pupillary and vascular phenomena.

DR. F. M. POTTENGER, Monrovia, Calif.: The subject which Dr. Barker has ably presented in his paper interests me greatly. However, I wish to confine my remarks mainly to the question of tachycardia. The old conception of exophthalmic goiter, in which emphasis is laid on protruding eyeballs, rapid heart and an enlargement of the thyroid, is wholly inadequate. While these three symptoms are prominent, yet the disease is something entirely different. The work of Plummer and

Kendall, of the Mayo Clinic, shows that the toxic element of the thyroid (thyroxin, isolated by Kendall) is one which acts not on the nervous system directly, but on the tissue cells themselves. It acts as a catalytic agent and controls the energy output of the cells. An increased thyroid action, therefore, means an increase in metabolism, the rate being increased sometimes to 100 per cent. or more. Since the heart responds to all calls for increased energy, and is influenced by nervous and psychic states, it is but natural that the heart should be rapid in this disease, even without there being any specific direct stimulation of the cardiac fibers of the sympathetic nerves. We must look on this disease as being one of metabolic disturbance accompanied by a general disturbance of nerve balance and psychical equilibrium.

PITUITARY DISTURBANCE IN ITS RELATION TO THE PSYCHOSES OF ADOLESCENCE *

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One should always be cautious in exploring a more or less new field, but not so excessively prudent that the gathering of material and the discovery of truths become impossible.

Quickly to orient ourselves, we must deal briefly with the pituitary gland and some of its disorders, then with adolescence in general and some of its mental disturbances, and after this consider the bearing the one may have on the other.

Function.—Each of the three parts of the pituitary body has been endowed by investigators with separate functions. Among the functions of the anterior lobe are body growth and the development of secondary sex characteristics. It may also have to do with the regulation of the menstrual period in the female. Two of the chief functions of the posterior lobe are the control of carbohydrate metabolism and an influence on blood pressure stability. It seems also to play a part in uterine tonicity and probably that of other involuntary muscles. The functions of the intermediate lobe are not settled.

Schmidt and May[1] believe that the active principle of the posterior lobe is derived from the tethelin produced by the anterior lobe, and we know that the pituitary gland is actively connected with most of the other endocrine glands. The anterior lobe of the pituitary is said to be derived from the epithelium of the oral cavity, and the posterior lobe, from the cells of the interbrain.

Disorders.—Total extirpation of the pituitary gland is fatal, and of the anterior lobe is fatal, but of the posterior lobe is not necessarily so. Cushing has apparently shown that either undersecretion or oversecretion of the pituitary may be associated with hydrocephalus. Cushing, myself[2] and others have shown that hypopituitarism seems the responsible factor in certain cases of epilepsy. The pituitary gland may be functionally disordered by illnesss, injury, tumor, adolescent changes, or pregnancy.

In general, hypopituitarism beginning before puberty exhibits obesity, smooth skin, lessened perspiration, diminished body hair, undersized genitalia, and in the male a tendency toward feminine appearance, or in the female diminished menstruation or amenorrhea. If the anterior lobe is especially affected, we usually have in addition slow pulse and voracious appetite. If the undersecretion especially affects the posterior lobe, we note lowered blood pressure, increased sugar tolerance and adiposity.

On the other hand, hypersecretion occurring before puberty may account for precocious mental and sexual development, excessive body hair, long bones and early puberty. One of my patients has menstruated regularly since her second year and had fully developed pubic hair at the age of 6 years. If the anterior lobe is especially affected by hypersecretion, the sex characteristics are prominent and an increased libido is often present. Hyperactivitiy of the posterior lobe will account for decreased carbohydrate tolerance and at times increased blood pressure.

In discussing certain mental changes connected with pituitary secretion, Cushing, in his book, noted temperamental changes, wakefulness, lack of concentration, indecision, irritability and distrust occurred with hypersecretion. With hyposecretion, he found disturbances ranging from mild psychoses to extreme mental derangement, epilepsy, inability to concentrate, impairment of memory and, at times, drowsiness. In 1914, I[3] also described certain mental conditions and changes in personality due to disturbance of the pituitary gland.

Adolescence.—Now that the field has been briefly prepared, it will be well to consider some of the general characteristics of adolescence, which, as Stanley Hall says, is "a new birth—for the higher and more completely human traits are now born."

At this period, in a few years, the boy and the girl crystallize into the man and the woman. Adolescence is especially marked by development in physical and sex characteristics; by changes in emotion, love, conduct, ambition and domestic relations; by an elaboration of tastes, desires, dress, social instincts and religious views; by self-consciousness and self-analysis.

During the course of these and other changes, many what we may term physiologic-psychic upsets occur. In both sexes the imagination is overstimulated, judgment is not logical, sex attraction is based on passing fancies, extremes of fashion are indulged in and superstition is rampant. There is a craving for the dramatic and the mysterious. Most actors begin their profession during adolescence and secret societies flourish with adolescent members. Extremes of opinion and excesses of every kind are more common to adolescence than to any other period.

There is little wonder, therefore, that during this time, when the mental balance is upheld by so unsteady a hand, that it should frequently topple over. When this does occur, emotional instability becomes pathologically manifest by sexual perversions, crime, suicide, hysteria or dipsomania; menstrual disturbance, illness, injury, or shock may develop latent psychoses; and preexisting defects of development or bad heredity may now be recognized as dementia praecox, manic-depressive states, or paranoia.

It has been shown that there are definite changes in the pituitary gland at puberty, manifested clinically by changes in bone growth, fat, sugar tolerance, sex characteristics, body hair and in personality. Cushing

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Schmidt, C. L. A., and May, E. S.: Jour. Lab. and Clin. Med., 1917, **2**, 708.

2. Tucker, B. R.: South. Med. Jour., 1914, **7**, No. 8, 608; Virginia Med. Semi-Month., April 7, 1916.

3. Tucker, B. R.: South. Med. Jour., 1914, **7**, No. 8, 9608.

cites an instance in which there were two distinct types, descended through the males, traced for several generations: a "virile type," with early hirsuties; and a smooth skinned comparatively hairless, and what the patient called a "girlish type," in which adolescence is delayed usually until the seventeenth or eighteenth year. Sudden growth at this period may be taken, in certain instances, as an index of the activity of this gland. One of my patients grew 9 inches during the summer of her sixteenth year and afterward died of a neighborhood pituitary tumor; a boy with congenital syphilis grew 13 inches in thirteen months, beginning at his sixteenth year; and an undeveloped boy grew seven-eighths inch in five weeks on pituitary feeding.

such predomination was noted. Also, for the reason that in all cases both lobes appeared to be more or less affected, the secretion of the gland was considered as a whole.

GROUP 1

CASE 1.—In a woman, white, aged 26 when seen, the psychosis began at 12½, without cause except adolescence. The menses appeared at 11. The father showed evidence of hypopituitarism. Her development was precocious mentally, physically and sexually. The cheek and jaw bones were prominent. The body hair was so much increased that at 15 she had to shave her entire arms when she put on short sleeve dresses. This hair was afterward removed by a chemical. The breasts were fully developed when she was 9 years of age. The pulse was 70; the blood pressure 125 systolic, when 26. A radiograph showed a large fossa, with smooth, clinoid processes.

FINDINGS IN PITUITARY PSYCHOSES OF ADOLESCENCE*

Classification	Clinical Findings	Roentgen-Ray Findings	Psychosis	Incidence
GROUP 1 Preadolescent oversecretion, with further increase during adolescence	Increase in body hair and sexual development and mentally precocious	Large sellae, with regular contour and smooth clinoid processes	Prejudices and infatuations, increased libido psychomotor acceleration, sudden changes in temperament and usually transient hallucinations	Rather frequent
GROUP 2 Preadolescent oversecretion, with decreased secretion during adolescence	Same as Group 1, with apparent arrest at puberty	Large sellae, with probably irregular outline and some thickening of posterior processes	Drowsiness or probably trance states, with disturbance of pulse and blood pressure; other endocrine glands usually also affected	Rare
GROUP 3 (a) Preadolescent normal secretion, with increased secretion during adolescence	Previous history normal, or practically so, with marked increased libido and sex characteristics during adolescence	Not definite	Increase in libido and general nervousness, but rarely amount to definite psychoses.	Common in moderate degree, but mental changes rare
GROUP 3 (b) Preadolescent normal secretion, with decreased secretion during adolescence	Previous history normal, or nearly so, with delayed adolescence, frequently increase in fat and sugar tolerance; appetite voracious; pulse often slow and blood pressure low	General size of sellae about normal, but thickening and enlargement of clinoid processes, especially the posterior; encroachment on fossae usually shown	Dull, seclusive, self-absorbed; repetition of movement common; difficulty in expressing themselves in writing; unemotional, unaffectionate, obstinate, irritable; may or may not have hallucinations and delusions; resembles dementia praecox	Frequent
GROUP 4 Preadolescent undersecretion, with further decrease during adolescence	Previous history normal, usually increase in fat and sugar tolerance, underdevelopment of genitalia, lack of body hair, lessened perspiration, voracious appetite, delayed adolescence and often amenorrhea in female	General size of sellae small, contour irregular, processes enlarged and extended so fossae and club or tend to bridge	Psychosis is usually not very profound; have dulness, irritability, tenseness, lack of ambition, often truancy and sometimes epileptoid convulsions	Rather frequent

*Usually these psychoses are preceded by illness, injury or great change in environment.

Pituitary Psychoses of Adolescence.—In studying this subject, I divided my cases into the following groups:

Group 1. Those cases which gave evidence of preadolescent hypersecretion, with an apparent increased hypersecretion during adolescence.

Group 2. Those cases which gave evidence of preadolescent hypersecretion with an apparent marked decrease in the secretion occurring during adolescence.

Group 3 (a). Those cases with a preadolescent approximately normal history, in which during adolescence the secretion was increased.

Group 3 (b). Those cases with apparently normal preadolescent secretion, which during adolescence seemed to have a decided decrease in the pituitary secretion.

Group 4. Those cases in which there had been preadolescent hyposecretion and, in which during adolescence the secretion appeared to be still further decreased.

It was thought that our present clinical knowledge was too indefinite to attempt to separate into groups the cases in which symptoms of the anterior or posterior lobe seemed to predominate, although at times

Mental symptoms began at 12½ and consisted of hypersensitiveness, night rigors, wondering what the people she saw would look like when dead, transient hallucinations, loss of affection for her mother and sudden changes from gaiety to solemn intenseness.

CASE 2.—In a girl, white, aged 15½ when seen, the psychosis began at 14½, after a spell of homesickness. The mother was neurotic, and one sister had hyperpituitary symptoms. At the age of 15, she looked as if she were 20. The menses began at 13 and occurred every two weeks with excessive flow. She was precocious in her studies and sex characteristics, and her body hair was excessive. The blood pressure and pulse were normal. There was no history of drowsiness. The thyroid was enlarged, but there were no other hyperthyroid symptoms. A roentgenogram showed a large sella, 10 mm. wide and 12 mm. deep, with smooth anterior and posterior clinoid processes. Mental symptoms began at 14½, and consisted of "baby talk," hysterical seizures, writing up and down on paper instead of across, tantrums, loss of affection for mother, carrying on imaginary telephone conversations, playing imaginary basketball, infatuations for various men and women and persecutory ideas. These symptoms gradually disappeared, and she is now a well-ordered young lady of 19 but still has menorrhagia

The roentgenograms in this group show large sellae with smooth clinoids. The most prominent of their mental symptoms are unreasonable prejudices for some people and infatuations for others, increased libido, psychomotor acceleration, transient hallucinations and sudden changes in temperament. The psychosis of this group may be said to resemble more or less what has been called profound hysteria.

GROUP 2

Case 3.—In a girl, aged 15 when seen, the psychosis began at 14½, after a fever. The family history was negative. She was overdeveloped sexually, although about normal size and with normal features. The body hair was increased, and she was precocious in her studies. She had marked vasomotor mottling and flushed easily. The blood pressure was 148 systolic and 95 diastolic. The pulse was 130, and the thyroid was slightly enlarged. The menses were free and began at 12½. A roentgenogram showed that the clinoids were enlarged and the fossa was encroached on, although it was not small in general contour. The psychosis consisted of periods of a trance state, lasting days, in which she refused food, sighed deeply and would not talk. Out of these trance states, she would come suddenly. She had no delusions or hallucinations. She was affectionate to her family and very fond of dress. She was given anterior lobe pituitary gland extract and became well in about three months. With this feeding, the blood pressure dropped from 148 systolic to 130, and her pulse came down from 100 to 80. The urine was entirely negative. The hyperthyroid symptoms disappeared.

I am of the opinion that this group is very small. Only a few cases could be separated, of which the foregoing is the best example.

GROUP 3 (a)

There are a great many normal preadolescents who show marked signs of hyperpituitary symptoms during adolescence. In fact, a moderate extent of this is usual and normal. It is possible for this increased pituitary secretion to cause pathologic symptoms, but this is probably infrequent, for we could separate only a few cases belonging to this group. In consequence, we hardly feel justified in describing it.

GROUP 3 (b)

Case 4.—In a boy, aged 14 when seen, the psychosis began at 13 without known cause, except adolescence. The family history was negative. The patient was rather a thin boy somewhat small for his age. At 14, the genitals were rather small and showed no signs of enlarging, and there was no sign of body hair. He complained of considerable headache. He had done very well in his studies until recently. There was no history of drowsiness. A roentgen-ray examination of the fossa showed a sella of about normal size, but with enlarged anterior and posterior processes, which showed clubbing at the ends.

The psychosis was interesting, in that he had marked repetition of movements, in which he would go up and down the front steps as many as 14 or 15 times before he could start to school; he would cross and uncross his legs until stopped by his parents and repeat many other acts. He could not concentrate enough to write a postal card, although the letters he would make were perfect. He could not dress himself. He would make grimaces, jump up and whirl and was excitable and irritable. His thought processes were slow. No definite delusions or hallucinations could be made out. He was put on whole gland pituitary extract and gradually became normal.

Case 5.—In a woman, aged 18 when seen, the psychosis began at 16. There was no precipitating cause but adolescence. Her father's people were large, one sister had myxedema, and two brothers were very stout. She was about average size for her age, and her features were rather small. The genital and body hair was negative except for a fine, fuzzy growth of hair on her back. She had a headache which was corrected with glasses. The blood pressure and pulse rate were normal. She had some drowsiness. She was a good student till 16, and then became a poor one. The menses began at 13 and were regular. The thyroid was rather full, but she had no hyperthyroid symptoms except a fine hand tremor. A roentgenogram showed the sella was about normal in size, but both the posterior and anterior clinoids were rough and enlarged and tended to bridge. The psychosis consisted of very poor memory, dulness at school and hallucinations of faces peeping at her and of hearing voices. She had become indolent, unaffectionate and indifferent and could not concentrate in writing. She was obstinate and appeared most of the time wrapped in her own thoughts. She recovered with whole gland pituitary feeding for three months.

This group, we believe, is the largest of all. The psychoses resemble dementia praecox. The preadolescent pituitary symptoms are negligible. The patients begin to be dull in their studies, seclusive and self-absorbed. Repetition of movement is common. Hallucinations and delusions may or may not be present. Difficulty in expressing themselves by writing is common. The patient is usually unemotional and unaffectionate, and obstinate and irritable if disturbed. The roentgenograms show thickening and enlargement of the clinoid processes, but the general size of the sella is about normal.

GROUP 4

Case 6.—In a boy, aged 15 when seen, the psychosis began at 14½. The family history was negative. The boy was very fat, belonging to a mild dystrophia adiposogenitalis type. He had never been a very good student. Six months previous, he had an epileptic convulsion and two others in the next few months. The psychosis began with loss of ambition, inattention, laziness, obstinacy, lack of emotion, irritability and wanderlust. Once he ran away from home and was found after many weeks in a distant city. A roentgenogram showed a very small sella, with the posterior clinoids rough and large and bridging across the fossa to the anterior clinoids. In less than a year of feeding with whole gland pituitary extract, the patient went to college and has been there for a year. He stands well in his class, his conduct has been exemplary and he has had no more convulsions.

Quite a number of cases belong to this group, although the psychosis does not seem to be very profound. It consists chiefly of irritability, mental dulness, tardiness, truancy and general lack of ambition. In some cases, epileptic convulsions occur. The roentgenographic findings are those of a small crowded fossa.

CONCLUSION

There seem to be definite reasons for believing that pituitary adolescent psychoses exist; that these psychoses may be divided into groups according to the clinical preadolescent status in comparison with the adolescent symptoms; that the roentgenographic findings correspond to the clinical type of the case, and that, in cases which show decreased pituitary secretion, the response to pituitary feeding is prompt and satisfactory.

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ABSTRACT OF DISCUSSION

Dr. Archibald Church, Chicago: On reviewing my own material I am disposed to feel that Dr. Tucker's classifications are not only suggestive, but likely to lead to a more definite conception of these conditions. I recall at least three patients with pituitary disease, young persons, in all of whom the pituitary condition was verified either by postmortem or at operation. They presented the symptoms of pituitary deficiency in the lack of development, and especially in sexual

retardation, and a mental picture that was practically parallel. All three of these boys showed decided precocity. One was a draftsman of high order at the age of 12, and one showed mechanical ability of an unusual constructive degree. But in association with these particular aptitudes there was a deficiency in other directions that notably placed these boys below the average of their mental age. I was enabled to detect the third case, so to speak, by my association with the first two because of the parallelism presented by the mental attributes as well as the symptomatic manifestations. This elaboration of the disturbances associated with pituitary defect which Dr. Tucker has given us in a sense confirms the heterogeneous recollections I have of cases of this character. I do not know that I am at the present time disposed to accept without considerable reserve the generalizations at which he seems to have arrived, but as suggestive of work in this field I look on his paper as of a very high order.

MEDICAL SERVICE IN THE CONSERVATION OF INDUSTRIAL MAN POWER*

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It must be realized that a decisive victory can not be gained by the Allies until the resources of the United States in men and supplies are made available for that purpose.

Our national war problems are (1) to mobilize and train for military purposes approximately 5,000,000 men, (2) to manufacture the supplies necessary to provide them with facilities for fighting, and (3) to transport men and supplies to France quickly and safely.

The production and transportation of supplies enough to maintain a fighting force of 5,000,000 men, it is estimated, will require the work of at least 25,000,000 people in the mines and on the farms, in the factories and on the railroads and the ships. This means a tremendous industrial expansion. It has already begun. Small factories have become large establishments, and rural communities have become centers of industry.

CONDITIONS OF INDUSTRIAL EXPANSION

Labor was not prepared to meet the requirements incident to this expansion. Our foreign supply has been cut off for four years. The men for the Army are being removed chiefly from the existing supply. To meet the deficiency, women are now doing the work of men, and men are leaving clerical and other less gainful occupations for more arduous but better paying jobs in the war industries.

There is much shifting of labor, probably due to the unusually high wages offered by certain of the war industries, as well as the fact that the recruits do not readily find occupations for which they are suited. This shifting of labor, or "labor turnover" as employers call it, is fraught with possibilities for wastage and expense.

Parenthetically, it may be said in explanation that the term labor turnover expresses the relation of the number of employees who leave to the average number necessary to maintain the working force, and it implies the replacement of those who leave by the hiring of new people. A turnover of 400 per cent. a year, which is by no means unusual, indicates that a number equal to the whole working force leaves every three months and that an equal number must be hired during the same period.

To develop and maintain a capable man power is a national problem, on the solution of which depends, to a considerable degree, the effectiveness of our expeditionary forces. Although this is a national problem, the position occupied by the manufacturers of war supplies confers on them the obligation of leadership. If they desire to have their establishments manned by stable, capable working forces, they must at least provide the organizations and equipment necessary to select efficient workmen and to maintain them as such.

One hundred and seventy industrial establishments have recently been visited for the purpose of studying the activities of physicians in the industries. These studies have naturally led to a consideration of all activities used by modern industry to stabilize and make efficient the working forces.

It has been observed that the modern employer has these facts in mind: that the most capable workman is (1) healthy, (2) free from worry, and (3) engaged in work he likes and is able to do rapidly and well. Such an employer, so far as possible, selects as his workmen people who are healthy and contented and assists them to remain so; assigns them to work for which they are fitted or trains them for work they may be able to do; and provides them with such supervision, methods and facilities as will enable them to reach and maintain their greatest productivity.

DUTIES OF THE EMPLOYER

The specific duties of an employer who wishes to develop a permanent, capable working force are to provide: (1) a safe, healthy place in which to work; (2) machinery, tools, methods and processes which permit rapid work of good quality, with health and body hazards reduced to a minimum; (3) competent supervision; (4) the organization and equipment necessary to ascertain the type of work an applicant for employment is temperamentally, physically and by training fitted to perform; (5) special facilities for training inexperienced help when qualified workers are not available; (6) physical supervision; (7) protection from communicable diseases; (8) medical and surgical treatment when the employer is responsible; (9) medical and dental prophylaxis; (10) adequate nourishment at cost, or otherwise, during the working days; (11) periods and facilities for relaxation and recuperation when the work is monotonous, concentrating or exhausting; (12) instruction in keeping well and avoiding injury; (13) opportunities for education and advancement; (14) assistance in adjusting difficult social and financial relations, and (15) encouragement of thrift, domesticity, morality and sobriety.

THE PHYSICIAN'S PART IN THE PROGRAM

The special knowledge and skill possessed by physicians peculiarly fit them to assist employers in carrying out the foregoing program, and the most useful industrial physicians are those who are most able to use their abilities to that end. Their activities in so doing are named and discussed under the following headings:

* Read before the joint meeting of the Section on Preventive Medicine and Public Health and the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. *A Safe, Healthy Place in Which to Work.*—By frequent and regular tours of inspection of the establishment and its premises, the physician may assist the employer materially in avoiding the occurrence of insanitary and unhealthy conditions. When this duty is delegated to an engineering or safety department, as it occasionally happens, the physician should arrange to accompany and tactfully to aid the regular inspector. During the tour, observations should be made concerning waste and sewage disposal, washing and toilet facilities, ventilating, illuminating, heating or cooling systems, suction devices, sweeping and cuspidor service, etc.

Bacteriologic analyses of the drinking water should be made frequently and regularly, unless the source of supply is unimpeachable. If the establishment has an installation for regulating the temperature of the drinking water, occasional temperature tests at the faucet should be made.

2. *Machinery, Tools, Methods and Processes Which Permit Rapid Work of Good Quality, with Health and Body Hazards Reduced to a Minimum.*—Certain industrial processes require the use of chemicals which are known to be inimical to health. A knowledge of the effects of these processes on the human body enables the physician to aid the employer in safeguarding the processes in which such chemicals must be used.

Data obtained by the medical department in recording injuries should be made available for the purposes of accident prevention. In this manner, attention may be directed to machines or tools or methods that are repeatedly the cause of injuries.

Research into the physiologic effects of monotonous, concentrating or exhausting operations will qualify the physician to act with the employment department in the placing of new operatives. Such research will also serve to elevate the practice of industrial medicine to a higher scientific level.

3. *Competent Supervision.* — Employers are frequently unable to obtain a maximum of productivity out of their establishments for the reason that they overload some and underload others of their operatives. The intimate information that comes to a physician permits him to supplement the technical knowledge of the employer, and together they are able to distribute equitably the work to be done.

Good will is essential to competent supervision. The industrial physician finds himself many times in a position in which he can bring both employer and employee to an understanding of each other. While this is not a function of medicine, listening to other folk's troubles has become an obligation to physicians whether in the home or the factory. It is a tribute which the whole world pays the physician. The industrial physician should betray no confidences. He should at all times be fair. His position as adviser to the employer and "big brother" to the employees, though delicate, has opportunities which he must recognize in order to succeed as an industrial physician.

4. *Organization to Ascertain the Kind of Work an Applicant for Employment is Fitted to Perform.*—In modern establishments the qualifications of an applicant for employment or reemployment are analyzed before he is assigned to work, and physical fitness is one of the qualifications considered. As the physician is trained to detect bodily impairments, this part of the analysis is delegated to him. The usual procedure is an inspection designed to bring out the obvious defects, such as cardiac lesions, hernia, varicocele, hydrocele, varicosed veins, deformities, imperfect vision and the communicable diseases, including the venereal.

Because of the conditions imposed on employers by the compensation acts, physical impairments that are at all likely to result in incapacity of a disputed origin, or are apt to influence the cause or severity of accidental injuries, are regarded as sufficient causes for rejection. This policy is not in conformity with the most advantageous use to which the information gained by a physical examination could be put, and were the policy continued, eventually some very capable, though physically imperfect, workmen would be kept permanently out of industry.

Fortunately, the urgent need for labor in the manufacture of war supplies has caused a relaxation in the stringency of the rejection of impaired applicants for employment, and the knowledge gained by physical inspection is used for the purpose of defining their limitations rather than as cause for their rejection. The presence of a communicable disease or an obviously disqualifying defect is still considered sufficient to justify rejection. Some establishments have given up physical examinations for the present, because of the shortage of labor.

In one large plant, the following routine was used by the medical department in making inspections of the many applicants for employment: The prospective workman was weighed and measured for height by a clerk. Another clerk tested his vision, one eye at a time, by holding aloft one or more fingers. The applicant then joined a long line of his fellows, and passed, with shirt and trousers unbuttoned in the front, before a doctor who applied a stethoscope to the chest and palpated the external inguinal rings. The query quickly arises. Is it worth while for a physician to do this kind of work? If the physician is to be of use in the selection and the assignment of employees to work, he should make his examinations sufficiently thorough to uncover the true conditions. He should, further than that, gather data that would enable him to make scientific studies of the relations of physical impairments to capacity for work. He should, still further, study conditions under which employees work, in order that he may intelligently advise with the employer as to the effect of working conditions on the health of the workers, to the end that those conditions which impair the health and efficiency of the workers may be eliminated. This he cannot do without full knowledge of the physical defects of the employees when they enter the establishment.

5. *Special Facilities for Training Inexperienced Help When Qualified Workers Are Not Available.*—Employers are finding it increasingly necessary to equip and maintain schoolrooms in their establishments, where apprentices and other untrained applicants for employment may be taught special trades. For instance, a woman is taught to run a machine that was formerly operated by a man.

Here is a splendid opportunity for a physician to tell the new employees how they may avoid illness and injury, particularly if their work involves a hazard, and also what to do when they become sick or injured.

6. *Physical Supervision.*—If the industrial physician is to supervise the health of the employees, he

should examine them with sufficient frequency to keep thoroughly familiar with their conditions of health. Process workers subjected to special hazards, such as lead, should be examined at least monthly. If an employee's production has fallen off, he should be reexamined, unless the reason is evidently not physical. When an employee does not feel well, or has the appearance of illness, the doctor should ascertain the reason by a reexamination. When pathologic conditions have been found they should be checked up by an occasional reexamination. In justice to both employer and employee, a process worker who expects to leave the service of the company should be given a reexamination before being permitted to do so.

7. *Protection from the Communicable Diseases.*—While it may not be practical for a physician to visit personally every employee in the establishment each morning, it should be understood among the foremen and the employees that any person who has a breaking-out, or does not feel well, should be sent to the physician. This service is very necessary during epidemics. There should be thorough cooperation between the public health authorities and the industrial medical department.

8. *Medical and Surgical Treatment When Responsible.*—Laws have placed the responsibility for injuries sustained by employees while engaged at work on the employer, and inasmuch as the employer has to pay the cost, he finds it to his advantage to secure the service of a physician experienced in emergency surgery. The physician obtained his introduction to industry in this manner, and the modern industrial medical department is the creation of the pioneers who saw possibilities for usefulness in the industries beyond the treatment of accidental injuries. It is regrettable that there are still physicians in the industries who do not seem to realize that the repair of injuries is but a small part of the work they are capable of performing.

In a few states, lead poisoning and certain other occupational diseases are compensatable and employers in these states provide medical service for patients suffering from those diseases.

The care of injured employees involves a wide range of professional activities and the further a man develops in industrial medicine, the more he delegates to the specialists. He is rapidly evolving, in a sense, a clearing station for the special practitioners. In fact, the dispensaries of the establishments in large cities have already become industrial casualty clearing stations, and the time will come when many large industries will have sanitarians, epidemiologists, internists, surgeons, oculists, dentists, orthopedists, roentgenologists, bacteriologists and laboratory technicians attached to the staff of their medical departments, even as some of them do now to a limited extent.

This does not indicate that the industries will enter into competition with the individual practitioners of medicine. On the contrary the plan will disseminate a knowledge of the value of competent medical service and stimulate a demand for service of that character outside the industries.

9. *Medical and Dental Prophylaxis*—This is health education by practical demonstration. It consists in the treatment of the many trivial illnesses that occur among industrial people through ignorance or through a lack of a realization of the necessity for the care of the human body. It is applied only under those conditions for the alleviation of which the average person would not seek professional advice. It is limited to the treatment of headache, constipation, colds, the cleaning of neglected teeth, etc.

10. *Adequate Nourishment During the Working Day.*—To obviate the depressing effects of a cold lunch washed down by cold water, employers are now providing restaurants or cafeterias for the noon luncheon and milk, coffee and soup stations for morning and afternoon refreshment.

The physician is in a position to suggest menus that are adapted to the type of employees and the character of their work. Through cooperation with the public health authorities, he is also able to assist in the selection of safe food and milk supplies. He should exercise supervision over the sanitation of the kitchen and watch for the presence of communicable diseases among the food handlers.

11. *Periods and Facilities for Relaxation and Recuperation.*—Many establishments have rest rooms for the use of their employees, especially those industries in which women are engaged. What employees need relaxation, rest or exercise, when they should have it, and for how long a period, are proper questions for a physician to decide.

A few large concerns have country clubs and sanatoriums where run-down people may be placed for restoration. To whom this privilege should be extended, and under what conditions the restoration period should be spent are also questions for the physician to decide.

12. *Instruction in Keeping Well and Avoiding Injury.*—The safety-first movement has impressed employers with the value of education in the prevention of accidents. They also perceive the value of education in the prevention of sickness, and they must rely on their physicians to conduct the instruction.

Whether this should be done through the medium of bulletins, lectures or personal talks depends on conditions and the personality of the physician. This is a field that has wonderful possibilities for usefulness to the physician.

13. *Opportunities for Education and Advancement.*—Special courses planned to prepare industrial workers for advancement are very popular, and the public schools, the Y. M. C. A. and the correspondence schools are all conducting such courses. They provide the doctor with an excellent opportunity to impress the ambitious workman with the value of his own health and to convince him that his ability to advance depends on his physical well-being.

14. *Assistance in Adjusting Difficult Social and Economic Relations and Encouragement of Thrift, Domesticity, Morality and Sobriety.*—There is a tangible relation between a man's home and community life and his industrial efficiency. The greatest sources of worry that beset a workingman are those which belong to his private affairs, yet they are of definite interest to the employer, who realizes that worry is capable of absorbing a tremendous amount of an employee's attention to his job.

Because of the fact that the problems involving the lack of thrift, domesticity, morality and sobriety sooner or later terminate in health problems, the doctor eventually becomes professionally interested. But before these problems become health problems, they are brought to the physician, if he is the type of prac-

titioner who encourages confidences, and he does not need to be a busybody to become interested and to assist.

It must be remembered that when these troubles come into the life of a workingman, they are big and engrossing, and the person who lends sympathetic assistance at that time gains a lifetime of affection. As the one person in an industrial organization to whom the workers may go with their troubles, the physician has an opportunity to do something for the employees that no employer can do, and he has the opportunity to gain for the employer the good will that the latter so much desires and is otherwise unable to acquire.

ON THE FIRING LINE OF INDUSTRY

It is evident from the foregoing that there is much work for the medical profession to do in connection with the movement to conserve our nation's industrial man power. If our country's integrity demands that the energy of our working population be brought to its highest degree of efficiency and maintained at that degree, then physicians are just as greatly needed on the firing line of industry as they are on the firing line of battle.

Unfortunately, when the United States recognized a state of war as existing, the value of industrial medical service was not realized. It was said that the industrial surgeons were just the type of physicians the Army needed, and they were urged to leave the industries for the uniformed service, and now, even though competent medical work is known to be necessary to the adequate production of war supplies, employers are finding it increasingly difficult to obtain the services of qualified industrial physicians.

There are three important causes for this condition. 1. Many industrial physicians have gone into the Army and Navy. 2. The medical men who have the courage to remain in industrial work are crucified on a slacker's cross by popular opinion. They are gradually going into the military service. 3. Other physicians, however well educated they may be for the practice of medicine, have not been trained to apply their knowledge to the purposes for which the manufacturing establishments exist, and are consequently poorly adapted to perform industrial service.

Either the industries must be content with a limited medical service consisting in that which can be rendered by first aid men, nurses, and physicians called in on emergency cases, or there must be devised for them a plan to attract physicians to and train them for industrial service.

SPECIAL TRAINING FOR INDUSTRIAL MEDICAL SERVICE

Such a plan should have government authorization and supervision. Industrial medical service should be recognized as a patriotic service. Competent men should be attracted to it. They should be given intensive courses of training and assigned to industries on request or detailed to industrial districts where several small establishments can be served by one man.

Provision should also be made for the training and assignment of first-aid men, so called, and nurses, who may act as assistants to the physicians.

Conditions outside the industrial establishments which influence the health and stability of the workers should also be considered. If, for instance, it is necessary to surround the cantonments by zones in which liquor may not be sold and vice may not be trafficked in, it is equally necessary that the working people in the industrial centers be similarly protected.

In times like the present when our national integrity depends on the virility of our national man power, medicine is offered its supreme opportunity. The profession has recognized the opportunity. To win the war is the physicians' supreme purpose; to serve humanity is their supreme privilege.

If great demands appear to have been exacted of the medical profession, they have been inspired by the profession itself. If there have been sacrifices, they were voluntary. If there are to be more sacrifices, they likewise will be voluntary. Medicine is determined to share in the glorious privilege of destroying the "iron cross."

Physicians prefer to serve on the battle front where personal danger is forgotten in the splendid work of restoring our fighting men who become injured to fighting condition. But if the call comes for physicians to enlist in our country's service in order to restore to working condition the working men who become sick or injured, then physicians will just as readily and patriotically offer their services for that purpose.

I have always been proud of my profession—I glory in it now.

656 Spitzer Building.

MODERN INDUSTRIAL MEDICINE*

C. G. FARNUM, M.D.

PEORIA, ILL.

Industrial medicine, in its modern acceptance, is a new field of endeavor. Within the past half decade we have seen it develop from a discredited branch to one deserving and receiving the highest respect and recognition. We have, during this time, seen the day of the old-time company physician pass and the day of the modern, highly trained, industrial medical specialist arrive.

This transition has been so rapid, the growth so wonderful, and its establishment so speedy, that the term modern industrial medicine does not mean industrial medicine as it was practiced a year or two ago. Our ideals of yesterday are obsolete today, and we have vision and faith to believe that our dreams of today will be realized tomorrow.

It is only a few years ago that there came on the industrial horizon a few physicians of a new type These men possessed foresight. They had a perspective of life. They had courage. They saw more to industrial medicine than the dressing of wounds and the reduction of fractures. It was they who first lost sight of the mass and saw the individual.

It has been this fundamental principle of the value of the human, applied honestly and justly by these men of high ideals and clear vision, that has raised industrial medicine out of the rut of the commonplace and has put it in its present exalted position, where it represents the very essence of human con-

* Read before the joint meeting of the Section on Preventive Medicine and Public Health and the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

servation and stands out as one of the greatest contributions of the present generation to civilization.

Medical men are more or less familiar with the work of a well organized department of medical supervision in a modern industrial plant. They know its scope and its modus operandi, but there is one particular phase of that work that I should like to emphasize at this time for clearly obvious reasons. Every applicant is given a complete and painstaking physical examination before he begins work in the plant, and the labor he is asked to perform is largely influenced by the physical findings in his individual case.

The number of physically perfect specimens is not great in normal times, and with the withdrawal from industry of large numbers of men for military service, the physically perfect ones are becoming fewer each month. This matter of physical defects has been emphasized for some years by industrial medical men and has been very strikingly reemphasized by the recent draft examinations. Therefore, since the bulk of the work in the industries is and has been done by men of greater or less degree of physical deficiency, how important it becomes that each worker shall be placed at work compatible with his physical condition in order that he may be able to utilize to its utmost the talent he possesses, and that his days of productivity shall not be shortened!

In these days of industrial stress, when every energy is strained for the realization of adequate war export surplus production, this is vitally important. We are facing the twofold problem of the need of greatly increased production with a greatly decreased number of producers, most of whom are defective.

Conservation is the slogan of the day, and we men of industrial medicine are clamoring for the conservation of the worker. We cry out against the wanton wastefulness of the old days and the old methods. We break boldly with the false philosophy of burning the candle at both ends and of tossing the burned-out remnant aside when it is no longer useful. We maintain that every man who is not a menace to his fellow workers by contagion is capable of doing some work safely and of doing it well. Our task is to get the man and the job mated up. This, then, is the work of the department of medical supervision and its correlated departments of employment, safety and welfare.

I have walked through industrial plants and in an hour have seen a hundred jobs filled by apparently able-bodied men, which could have been done equally well by a cripple or a defective. And the same day the employment department of that plant was refusing employment to the very cripples who could have done that work. Is that industrial conservation? Is it strange that the so-called irreducible minimum of unemployment is still so large?

In our plant, the superintendent of safety has but one leg and by that very token is more valuable as a safety man than if he had two legs. Recently eight men came into my office at one time for examinations. One was minus an arm, two were each minus one leg, and one was minus both feet. Did we utilize them? We certainly did, and these men are doing the work they were given to do as efficiently and are receiving the same wage for it as though they possessed all their extremities.

In a really modern industrial plant, where the department of medical supervision is worthy of the name and where the safety engineer and the superintendent of employment are alive to modern needs, the individual jobs are classified and indexed as to availability for physical defectives. How simple the whole procedure then becomes! What matters it how many arms, or legs, or eyes, or ankylosed joints a man chances to possess?

I need not go further into this problem. Its scope and application are obvious. But the men must be constantly watched, frequently reexamined, unceasingly supervised.

Some of us have statistics concerning a period of years that bring out two striking facts in connection with this work: first, that the labor turnover varies inversely as the physical defects of the laborer, and second, that the worse the physical defect, the less the accident incidence. These statistics may be considered the measure of the physical and mental compatability of the man with his job.

Of late we have heard much of the problems of the returned crippled soldier, of what can be done with him, of how he is to be reestablished in industry and society. The men of modern industrial medicine believe that they have contributed much to the solution of this problem of the crippled soldier. The Army officials have accepted the responsibility for his reconstruction and education. His reestablishment in the industrial world lies in the hands of the industrial medical men and the industries they represent. Their plan has been developed and in some of the plants has been in active use for a few years. They have proved its worth among industrial defectives and are ready for the added task of the war cripple. The industries in which this work is being done are waiting to prove their capacity and those plants in which such work is not done must be modernized.

This, then, is the thing for which industrial medical men ask: the safe utilization of all workers, the conservation of the energy and strength of every worker. We must have it, if the reduced and defective army in the industries is to maintain our growing army overseas.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SELBY AND FARNUM

Dr. J. W. Schereschewsky, Washington, D. C.: The point Dr. Farnum made, that it is necessary to utilize all sources of man power, is one that should be impressed on the mind of the managers of all industrial plants. In the past, owing to the provisions of our compensation laws, we have used the method of medical examination as a selective process by which we could induct into the industry those best fitted, from a physical standpoint, to yield the largest return from a production standpoint on the wages they earned. As in many other cases, we have gone on the supposition that the most perfect physical specimen was necessarily the most efficient man. When we proceed on these premises we lose sight of the fact that we create from those who suffer from one physical defect or another a special class, against whom we discriminate. Although one possess a defect, that fact need not affect adversely his ability to produce. Certainly, a man who has lost a leg may not have his physique impaired thereby. His digestive apparatus and vascular system may still be far superior to that of one who possesses all his limbs. When we refuse employment to such men we disregard a source of potential energy which might be used to great advantage in industry. We thus omit an important way by which our labor forces can be made much more effective than they have been in the past. I cannot commend too greatly the necessity of utilizing to the fullest extent, no matter what their physical impairment, all the men we can.

Dr. Selby has given us a most comprehensive résumé of the problem which confronts the profession in conserving the man power of the nation and the means by which this can be carried out effectively. I agree with him that in the medical profession there are two things essential to winning the war. The first is the care of the military forces. Like Dr. Selby, I cannot too greatly express my pride in the way the medical men of the nation have responded to the call for that service. But behind that, is the conservation of the industrial group of the population. There, too, is a field in which the medical profession can give its services toward the increasing of efficiency, and it is at present freely doing so. It is only right that the industrial physician should receive from the medical profession and the public a proper recognition of their services.

Dr. Charles G. Farnum, Peoria, Ill.: There used to be talk of the number of rejections that we make among the applicants for the work. In some cases, these rejections ran over 18 per cent. When a man tells me that he rejects 18 per cent. of all applicants, I know he is doing poor work. He has not classified the work of his industry so as to utilize the men. You cannot take men with smallpox, malignant syphilis or tuberculosis, of course; but you cannot classify these men as on the labor market. They belong in an isolation hospital. Yet with these cases included, our rejections run much less than 1 per cent. If they run higher, your jobs are not classified as they ought to be; because practically every man is able to do some job safely and correctly. How many plants will put an epileptic to work? Yet places can be made even for epileptics.

I should like to bring out again forcibly the two points I made in this paper: The importance of a careful physical examination, and the importance of an improved classification of the jobs, in order to get the man and the job together.

Dr. Clarence D. Selby, Toledo, Ohio: The obligation of the profession toward the industrial man power is not alone the obligation of the industrial physician, but of the orthopedist as well. That was my object in reading the paper. The accidents that occur in the industries can be influenced materially by the adaptation of orthopedics to the care of the men injured. The specialists and all of the medical profession have obligations toward the industrial life. The health officer, which I have been, has the best opportunity of all to reach the productive masses over which he has authority; and the health of the community and the activities in the industry are essential to maintaining the man power and creating a new industrial man power. Those engaged in child welfare work also have wonderful opportunities.

Vaccination Against Smallpox and Typhoid Fever.—The Secretary of the Treasury Department recently issued the following notice to persons in charge of establishments manufacturing war materials: From the standpoint of health conservation and labor efficiency, it is imperative that such communicable diseases as smallpox and typhoid fever be prevented in all establishments manufacturing materials for the federal government. This is of special importance at the present time in view of the constant movement of labor from one locality to another, which facilitates so greatly the spread of disease. The experience of every civilized country shows that complete protection is furnished against smallpox by vaccination, and temporary immunity against typhoid by inoculation with typhoid vaccine. In order to prevent such diseases, on the recommendation of the Surgeon-General of the United States Public Health Service, persons in charge of plants engaged in the manufacture of war materials are urged to require every person employed under them to be vaccinated against smallpox and inoculated against typhoid fever, as now done in the case of our military forces. The need for them has already been demonstrated by the occurrence of isolated outbreaks of smallpox in establishments engaged in the production of war materials through imported labor. The Public Health Service is ready to cooperate in enforcing these measures, and any persons calling at any of the service stations will, on request, be vaccinated against smallpox or typhoid fever free of cost.

DIAGNOSIS IN TRAUMATIC NEUROSIS*

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Opinions regarding the outlook for recovery in accident neuroses, commonly known as "traumatic neuroses," vary widely by the writers on this subject. Formerly this question of prognosis was studied in the subsequent medical history of persons injured in railway accidents, and afterward developing a neurosis. In this connection, the often quoted and striking statistics of Braun are interesting. This investigator studied the relative frequency of the neuroses following railway accidents in the ten years preceding and the ten years following the Austrian accident insurance law of 1895. Whereas in the period preceding the enactment of the law no case of disability was noted attributable to a purely nervous state, in the ten years following forty-six such cases were observed. From this investigation, traumatic neurosis and accident compensation appeared to be very intimately related. Pearce Bailey[1] cites Page, who studied the proportion of recoveries in 234 persons injured on the London and Northwestern Railway and found that considerably more than one half of the patients recovered eventually, although recovery was often delayed. His inquiries were made in the larger number of cases after two years' time following the accident. Bailey himself intended to investigate the prognosis in railway accidents on American railways, but found the plan impracticable. In another communication of this writer,[2] eight cases of traumatic hysteria were studied from the standpoint of prognosis and based on the subsequent history of these cases. Rumpf and Horn[3] at a later period (1912) on the continent reported the outcome of 136 cases of railway accident neuroses, where compensation had been settled on a cash basis. Seventy per cent. of these were cured; 16 per cent. improved. Contrasted with this type of compensation, the pension method in 172 cases quoted from Stursberg showed 25.5 per cent. cured or improved. These authors classify the accident neuroses by etiologic considerations, and speak of direct and indirect causes corresponding to primary and secondary neuroses. To the primary neuroses belong the fright neuroses, the shock neuroses, the local neuroses, the neuroses following general shock commotion, and those due to combined effects. To the secondary neuroses belong the manifold causes and manifestations growing out of the struggle for a pension, and other psychic influences, not necessarily dependent on trauma. The prognosis is considered in relation to the different primary group forms for recovery and duration of disease; also in relation to the physical condition and to a neurotic disposition previously existing.

The prognosis as regards industrial disability is attempted from the purely clinical standpoint by Paul Schuster (Lewandowsky's system). The following types are classified: (1) simple neurasthenic type, disability, 25 per cent. or less; (2) neurasthenic type,

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Bailey, Pearce: Diseases of the Nervous System Resulting from Accident and Injury, New York, D. Appleton & Co., 1908.
2. Bailey, Pearce: The Prognosis of Traumatic Hysteria, etc., Med. Rec., Aug. 24, 1901.
3. Rumpf and Horn: Sechste Jahresversammulung der Gesellschaft, Deutscher Nervenarzte, Ztschr. f. Nervenh., 1912, 358.

with prominent spinal symptomatology, disability from 40 to 75 per cent.; (3) hysterical type with contractures, disability in the neighborhood of 50 per cent.; (4) type of neuroses occurring in psychic constitutional inferiority (psychopaths, mental defectives), disability complete or very resistant to treatment; (5) vasomotor type, disability 33.5 per cent.; (6) tremor type, disability in serious forms (pseudospastic paresis), complete or 75 per cent. impaired; (7) type with outstanding psychic depression, in severe forms, disability complete; (8) hypochondriacal querulous type, disability in severe cases complete, especially when based on desire of compensation. In such cases, compensation has been denied by legal decision.[4]

Naegeli,[5] in Switzerland, reviewing the recent literature regarding the prognosis of traumatic neurosis discerns a tendency toward an unfavorable outlook (Kraus, Aschaffenburg, Bruns, Huguenin). His own investigation (138 cases) shows a most favorable outlook for recovery after settlement of compensation. In fact, Naegeli has not observed a case of pure traumatic neurosis of persisting, serious, industrial disability in an uncomplicated traumatic neurosis, and without denying the possibility of such cases, challenges his colleagues to produce such cases.

Dercum,[6] in studying the outcome of a series of litigated cases after settlement, emphasizes the rapidity of recovery after monetary adjustment of their claims. He speaks of "indecent haste" of their restoration. Mayer,[7] in an excellent discussion of the subject of traumatic neurosis, in the chapter on "Incidence and Recoverability," reviews important recent opinions regarding outlook for recovery. Zenner[8] quotes Putnam (25 per cent. or less invalided); Knapp (improvement in not more than half of cases).

The American literature dealing with the question of recoverability is quite sparse. The importance of this aspect and the considerations which determine it are evident, particularly at this time. Industrial insurance and compensation is in effect in many of the states and will ultimately extend to all of them. The war psychoneuroses known as shell shock, which are essentially a group under this heading, must receive attention and disposition in increasing numbers. With the return of our sick and wounded soldiers, there will be many claims for pensions in those suffering from functional nervous disorders, and it is in these cases that secondary neuroses are particularly prone to develop by reason of the ready sympathy for the disabled man who has served his country and the suggestion of the very term shell shock interpreted to mean something akin to physical shock. Colonel Colin Russell of the Canadian Medical Department has recently stated that soldiers returned from the front with so-called "shell shock" bear a diagnosis of "nervousness — sick," "nervousness — wounded." It is, therefore, urgent that inquiry be made as to the final outcome in such cases of accident neuroses that are available at present for investigation. With these points in view, as referee medical examiner for the Industrial Accident Commission of California, I recommended that a study be made of the subsequent course of all industrial accident neuroses which had occurred since the enactment of the California Compensation Act, Jan. 1, 1914. Through the efforts of C. B. Hensley, statistician of the commission, a special agent was appointed and started his investigation of these cases in June, 1917, continuing until April 1, 1918. During the months of July, August, September and October, 1917, this special agent, G. F. Helsley, a senior medical student of the Stanford University Medical School, especially selected for this work, was able to investigate fifty cases out of a total of 105 in the records of the commission and from my own personal records. In all but four of these fifty cases, the patients were personally seen (the four being communicated with by writing), and in all but two of them the factor of recompense for disability was present. It is due to the accurate and conscientious work of Helsley that this thorough investigation was made possible. Six thousand miles were covered, mostly in automobile, from Eureka to Los Angeles. Of these fifty cases, thirty-four have been previously personally examined and diagnosed by the writer. The complete records of these cases and other details not mentioned in this article may be found in the graduation thesis of G. F. Helsley, Stanford University Medical School, Lane Library, 1918, "Prognosis of Traumatic Neurosis." Each case history was abstracted after the following form:

Name of injured. Address. Sex. Age. Nationality. Married. Wage. Occupation. Employer. Date of Accident. Causes of Accident and Injury (objective). Indirect causes (subjective). Nature of injury. Status of injured immediately following injury. Symptoms of neurosis and onset of same. Disability resulting from injury. Improvement and decline. Medical or surgical treatment. Attitude of injured toward treatment. General examination. Special neurologic examination.

On a separate form, the results of the investigation were made in the character of a questionnaire:

A. Name, date.

B. Complete outline.

Dependents: Nature and amount of compensation; insurance payments promptly made? Is compensation or settlement satisfactory? Present medical treatment; was former treatment satisfactory? Employed now? If idle, why? Present occupation, wage, employer? Detail course of disability, with jobs held, wage, etc. How is money need? Belief of seriousness of trauma. Unfavorable suggestion by relatives and friends. General environment. Evidence of simulation or exaggeration. Psychic status of patient; cheerful or depressed. Detail present condition in reference to previous examinations. Photos taken. Permission to publish.

From the foregoing records a table was compiled with reference to cases recovered, cases industrially rehabilitated—able to resume work satisfactorily, but still troubled by symptoms of neurosis—definitely improved, but not yet restored to usual earning power, and cases not improved. Under these headings a percentage was figured on an analysis of the different factors having an influence on the establishment and continuation of the disease. These were age, sex, character of original injury, number and nature of symptoms, clinical classification, predominant mood, residual organic lesions, unfavorable environment, unfavorable suggestion, fixed ideas and nature of compensation—whether periodic payments or final settlement. Finally, a consideration of the entire series was made in reference to average, minimum and maximum

4. Schuster, Paul: Handbuch der Neurologie, 5, Spez. Neurologies, IV, p. 1105.
5. Naegeli: Cor.-Bl. f. Schweiz. Aerzte, 1910, 40, 33.
6. Dercum, F. X.: Hysteria and Accident Compensation, Philadelphia, G. T. Bisel, 1916.
7. Mayer, E. E.: The Traumatic Neuroses, THE JOURNAL A. M. A., Sept. 22, 1917, p. 958.
8. Zenner, Philip: Traumatic Neurosis, THE JOURNAL A. M. A., April 13, 1907, p. 1260.

time between injury and investigation; average time from injury and recovery from symptoms; from injury till return to work, and from final settlement till return to work. A study of the accompanying table will enable the reader to more clearly follow the opinions and conclusions deduced from this study. Although this series of cases is not a large one, yet in my opinion

PROGNOSIS OF TRAUMATIC NEUROSIS

	Number of Cases	Recovery, Satisfactory per Cent.	Industrial Rehabilitation (Able to Resume Work Satisfactorily, but Still Troublesome Symptoms of Neurosis), per Cent.	Definitely Improved but Not Yet Restored to Usual Earning Power, per Cent.	Not Improved, per Cent.
Entire series	50	14	26	36	24
Under 30 years of age	12	0	42	58	0
From 30 to 50 years of age	33	22	22	22	34
Over 50 years of age	15	13	20	40	27
Male	42	17	19	36	28
Female	8	0	62.5	37.5	0
Original injury negligible or mild	12	8	33.5	25	33.5
Original injury severe	28	21.5	28.5	36	14
Symptoms few, closely related	18	16.5	16.5	44.5	22.5
Symptoms many, widely variant	30	13	30	30	27
Symptoms of neurosis, diagnosed "hysteria"	28	7	18	39	36
Symptoms of neurosis, diagnosed "neurasthenia"	22	23	36	32	9
Psychic status cheerful	18	28	50	22	0
Psychic status depressed	28	0	11	46	43
Residual organic lesion present	19	5	26	32	37
Residual organic lesion not present	23	22	35	30	13
Unfavorable environment or suggestion	22	4	35	35	26
Confirmed belief of seriousness of injury and disability, improper treatment, unfair settlement	34	9	14.5	44	32.5
Nature of Settlement:					
Periodic payments till termination of disability	14	7	21.5	28.5	43
Periodic payments for 6 mo. or longer, but final lump sum settlement	10	30	10	50	10
Periodic payments for defined period, now ended	13	0	54	38	8
Periodic payments for defined period not yet ended, but injured man may resume work	4	0	0	0	100
Early lump sum settlement	6	33⅓	33⅓	33⅓	0
Entire series	50	Mo.	Mo.	Mo.	Mo.
Average time between injury and investigation	..	21	24	25	27
Maximum time between injury and investigation	..	30	37	41	45
Minimum time between injury and investigation	..	7	7	12	9
Average time elapsed between injury and recovery from symptoms of neurosis	4	11			
Average time from injury till return to work	..	6 cases 11	10 cases 8	7 cases 18	
Average time from injury till return to work for all cases, where known, 11.8 mo.	32				
Average time from final settlement till return to work	..	4 cases 7	4 cases 9	5 cases 4½	
Average time from final settlement till return to work for all cases, where known, 6.7 mo.	13				

the investigation is of distinct value. Etiologic considerations and clinical types are considered in this table in their general aspects only, as it was not thought advisable to further complicate the table by an analysis of the initial injury respecting emotion (fright) and bodily injury, which later factor might be further subdivided into bodily traumata of different sorts, leaving in their wake, after recovery from somatic symptoms, suggestion by psychic fixation, which would lead to the definite establishment and perpetuation of the different types of neurosis. Also, primary and secondary neuroses were not definitely separated but indicated in the general headings of unfavorable environment, unfavorable suggestion and the all important consideration of wish fulfilment regarding compensation. The foregoing considerations would justify the opinion that a study of the individual case by a person or persons experienced in these cases is necessary to an exact prognosis, if at all possible. However, from the practical standpoint it seems imperative that we must in some way classify and attempt to fix the probable duration of disability in cases of neuroses at their onset for the benefit of not alone the insurance carrier, but also from other economic reasons, and particularly from the standpoint of the benefit to the patient himself. Although the question of simulation deals particularly with diagnosis, it may be here stated that we have found frank simulation a rare condition, although exaggeration not infrequent.

The following comment may be made in an analysis of the tabulations:

En.ire Series: Seven cases (14 per cent.) show satisfactory recovery; thirteen cases (26 per cent.) are industrially rehabilitated, although still somewhat complaining of their symptoms; eighteen cases (36 per cent.) definitely improved; twelve cases (24 per cent.) not improved. Or, 40 per cent. show complete restoration or earning power.

Age: Age is apparently unimportant, but it is to be remarked that of the twelve cases of under 30 years of age, no one case has recovered completely.

Sex: Although the women show a greater tendency to partial recovery, not one is entirely relieved of symptoms.

Original Injury, Character of: The severity of the original injury apparently bears no relation to the outlook for recovery. In fact, in those whose injury was classed as severe, more have been restored to industrial efficiency than those classed as mild cases.

Symptomatology: An attempt has been made to divide the cases into major groups of hysteria and neurasthenia, although often there is a mixed condition present. Those cases, however, showing predominantly hysterical symptoms, show a much more unfavorable prognosis compared with the neurasthenics, or compared to the total series.

Psychic State: The cheerful patients as compared with the depressed ones show a marked contrast in the percentages of complete and partial recovery in favor of the cheerful cases; conversely, a large percentage of unimproved cases (43 per cent.) in the depressed. In the unrecovered patients, the psychic condition may be logically assumed to be one of depression, but the psychic status was considered at the first examination, when obtainable.

Residual Organic Lesion: Visible effects of injury, such as scars, bony deformities and deficiency of soft parts influence the outlook unfavorably, as is clearly shown in the table.

Unfavorable Suggestion; Discontent: Confirmed belief of the seriousness of the injury and disability, improper treatment and unfair settlement usually appear in the same case. In thirty-four such cases the percentage of recovery for work is quite small, 235 per cent. The reason for this state of mind is not always due to unfavorable environment or suggestion, in the usual surroundings of the patient, including solicitous and sympathetic friends and relatives, but may be due in far greater measure to a mistaken diagnosis and direct suggestion of serious and perhaps permanent disability from the attending physician; improper treatment due to a mistake in diagnosis, the condition being considered organic and treated as such; or, indeed, no treatment at all, as patient is referred from one physician to another for opinion incidental to ratings, etc. Finally, compensation, while not being denied, is withheld pending a rating, or for other reasons and the patient, a wage earner in need of the necessities of life, becomes discouraged and believes himself a victim of unfair treatment. Or depressed and fearful that by resuming work

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he will aggravate his condition and be unable to continue, thereby losing compensation, he is either unwilling to begin or is soon discouraged by his hypochondriacal symptoms. This group is in striking contrast in percentage of recoveries to that of the cheerful psychic group.

Nature of Settlement: Of all the factors which enter into the course and duration of the accident neuroses, the question of compensation is one of the most important, and its great psychic influence in a considerable proportion of cases cannot be denied. There is almost a consensus of opinion that in the mental make-up of certain persons an accident neurosis may be unfavorably influenced, even perpetuated and aggravated by the pension system. However, that this is not true in all cases is seen in an analysis of fourteen cases, in which the patients received payments until termination of disability, three recovering industrially under the periodic payment plan. On the other hand, six patients out of the fourteen were not improved, which confirms the original contention. The cases showing lump sum settlement proved the most favorable for recovery, early lump sum settlement (six cases) being more favorable than in those cases (ten) where the patients had received periodic payments and a final lump sum settlement. As regards the question of compensation in general, it may be stated that in the group of patients showing industrial rehabilitation, but still presenting some symptoms of neurosis, classifying these cases as undoubtedly accident neuroses there were two patients not receiving nor having received industrial compensation.

Duration:

(a) Between injury and investigation: In the entire series of fifty cases, the lapse of time was about two years on an average, in the different headings, as regards progress. The longest period was three years and nine months; the shortest, seven months.

(b) Between injury and recovery from symptoms of neurosis: In all only four cases were available, and the average of these was eleven months.

(c) Between injury and return to work: Average time for all cases (twenty-three) where known was 11.8 months. For various reasons, this time could not be set in a number of cases.

(d) Between final settlement and return to work: Average time for all cases (thirteen) where known was 6.7 months. In these cases, however, the average total disability was 15.8 months.

The following abstracts are from illustrative cases in the series.

Case of Complete Recovery Following Early Lump Sum Settlement.—S. O., man, aged 40, a machine worker, making $21 a week, was injured Oct. 16, 1916, when a staging gave way, so that he fell 70 feet down a steep slope. He received several scalp wounds and probably had a concussion of the brain; in addition, he had contusions of the body, both shoulders and the left ankle. He was unconscious for several hours after the accident. On examination by a neurologist, Dec. 1, 1916, he complained of the following symptoms: dizziness on stooping over and when lying down; continual pain in the head and neck; insomnia; excess of sweating, and weakness of the left foot and ankle. He was noticed to be well developed and well nourished. His hand grips registered by dynamometer: right, 28 kg.; left, 24 kg. The only findings were slight tenderness in the left parietal region on percussion and deafness in the right ear, which, however, had been present from childhood. The diagnosis of traumatic neurosis was made, and a complete recovery was predicted within one month. Final settlement was made the injured man, Dec. 26, 1916, when he was awarded $49.78 as full compensation. Frequent letters from him during the early part of 1917 indicated that the neurosis still continued. At one time, he reported increasing disability from pain in the neck. When seen by the investigator, Sept. 23, 1917, he had resumed his former employment. After his accident and until February 1, he was employed as a watchman at the mine and, thereafter, until April 1, he did easy work on the hoist. Since April 1 he had been doing machine work at his previous wage, $3.50 a day. He stated that the increase of pain in neck, which he had reported, was temporary only, and since that time all his symptoms had gradually improved. His dizziness was gone early in the spring of 1917; he suffered no more trouble from sleeplessness, and there was no tenderness in his head. He still had occasional pain in his neck of slight degree and short duration, and his left ankle was still a little weak. Dynamometer readings of his hand grips were: right, 51; left, 47. It was evident that the traumatic neurosis was, for all practical purposes, cured.

Case of Complete Recovery Following Final Lump Sum Settlement.—B. W. J., man, aged 37, an iron worker, making $27.50 a week, was injured Oct. 7, 1915. He stumbled into a hole 2 feet 4 inches deep and was struck several times in the back by one end of a 200 pound steel bar, which he had been helping another man to carry. His body was bent over the side of the hole. The exact nature of the injury which he received is questionable. On roentgen-ray examination, there was evidence of a fracture of the tip of the transverse process on the right side of the first lumbar vertebra, with a displacement of the fragment. There was also possibly a subluxation of the right sacro-iliac joint. Immediately after the injury, this man was unable to walk unsupported, and complained of great pain in his back. When seen by the neurologist, Sept. 19, 1916, he complained of the following symptoms: pain in the lumbar region and in the back of the neck, increasing after walking, so that he has great difficulty in getting around; impairment of vision in the left eye; general nervousness and tremor; sleeplessness; a quivering sensation in the upper abdomen; dizziness on stooping over; loss of weight and loss of appetite. On examination, the injured man was found to be a well built, well nourished man. There was tenderness over the lower lumbar and upper sacral spine and at the right sacro-iliac joint. There was limitation of movement at the hip, especially the right, and in walking the right leg was favored. Excessive perspiration was noted. The hands and feet were cold and cyanotic. The fingers trembled, especially those of the right hand. Deep reflexes were overactive. There was distinct muscular incoordination. Diminution of sensibility was present in the right leg below the hip, of the hysterical segmental type. His hand grips registered: right, 40 kg.; left, 39 kg. Diagnosis of traumatic neurosis was made, with prognosis of disabilty of indefinite duration. The patient had an exaggerated idea of the seriousness of the injury which he had suffered. He criticized very severely some of the treatment which he had received, and blamed his condition partly to that cause. He had a wife and two sons to look out for. His wife took a more serious view of his condition than did the patient himself and did not believe that he would ever be able to work.

Compensation was allowed for temporary total disability from the date of the accident until Oct. 6, 1916, when a lump sum settlement of $1,995.49 was made. Previous to this lump sum, the injured man had received $937.50, making total $2,932.99. When first seen by the investigator, June 16, 1917, he was

working as foreman on iron construction work at $36 a week. He had started to work April 1, 1917. He still complained of some pain in the right lumbar region and stated that his eyes bothered him, so that he wore dark glasses in the bright sun. He also suffered occasionally from sleeplessness. His other symptoms seemed to have been entirely relieved. All his severe pain had gone by February, 1917. His gait was normal. He seemed to be of distinctly nervous disposition. A slight tremor was still present in the extended fingers. Otherwise, the examination was negative, except for slightly overactive deep reflexes. The dynamometer readings registered: right, 57 kg.; left, 58 kg. The injured man stated that he was unable to do the heaviest work in connection with his employment, but when observed two months later at construction work, it was evident that he was probably the most active man on the job. At this time, he stated that his disability had practically ceased, and that he felt as good as ever. He passed the army physical examinations and was enrolled in the Second Reserve Officers' Training Camp at the San Francisco Presidio, during the fall of 1917. He was, however, discharged from the camp Nov. 20, 1917, the cause being unknown. This man's recovery from his injury was apparently complete, following within a few months of the lump sum settlement made him.

Case Unimproved, with Industrial Disability Complete After Final Lump Sum Settlement.—B. F., man, aged 35, a laborer, earning $17.50 a week, was injured June 7, 1915, by being struck on the right elbow by a heavy timber, as he was holding on to another timber with his right hand. He thereby suffered a fracture of the second right metacarpal bone at the proximal end and contusions of the right elbow. The injured limb was put up in a cast and, on removal of same, a tremor developed. Associated with this, the injured man complained of pain in the arm like a "severe electric shock," which was especially bad in the forearm and radiated to the ends of the fingers. There was great impairment of strength in the right hand. He was very much depressed over what he considered to be an extremely serious injury, which he had suffered in the right arm. He thought that his elbow was very badly damaged, although roentgen-ray examination showed absolutely nothing abnormal. There was some residual deformity of the right wrist, as a result of the fractured metacarpal bone. A wife and two young children depended on him for support. On March 13, 1916, in order to dispose of the case, a rating was made of partial permanent disability to the extent of 33⅓ per cent., for which the injured man was to receive compensation at the rate of $9.38 a week for 134 weeks. In order to enable him to start business on a leased poultry ranch, a final lump sum settlement was made him, Dec. 8, 1916, amounting to $480.10, which represented commutation for all the payments not yet due. The injured man claimed later that he did not understand that this was the termination of his compensation, and he was thoroughly convinced that he had been cheated. He was seen by the investigator, Jan. 21, 1918. At this time, he was in no employment and reported that the poultry ranch which he had undertaken had proved a failure. A well marked coarse tremor of the right upper extremity was noted, not limited to any special muscles. By distracting his attention, the tremor stopped. On attempting muscular effort, the tremor was greatly exaggerated. The hand grips registered: right, 8 kg.; left, 37 kg. The subjective sensations in the right arm were as above described. The great increase of pain and tremor, whenever he tried to do any work, prevented him from resuming any occupation. He stated that his arm is a little better than it was a year previously, but any improvement must have been very slight. He also stated that he was entirely destitute and without any income. Three treatments by hydrotherapy were applied to his right forearm and hand at the Stanford University Clinic, but no improvement was noted in his condition.

Case of Complete Recovery Under Periodic Payments (Pension) Until Termination of Disability.—C. L., man, aged 54, a teamster, making $21 a week, was injured June 18, 1915. As he was pulling on a barrel with a hook the stave broke, and his right arm was thrown backward. He suffered a sprain at the shoulder joint. He was seen by a neurologist Sept. 21, 1915, after the examining surgeon had found no evidence of local trouble in the shoulder joint. At this time he complained of pain in the right shoulder on movement; inability to elevate the arm to more than 75 degrees, and weakness of the right arm at the shoulder. Examination found weakness of some of the muscles of the right arm. The dynamometer readings were: right, 36 kg.; left, 40 kg. There was some pain in the shoulder joint, on passive motion. Voluntary motion in the effort to elevate the affected extremity was attempted in a bizarre fashion. He had become irritable of late. He had been told by a physician who had previously examined him that he had received a serious organic injury to the affected shoulder. The electric reactions of the muscles were normal, and a diagnosis of traumatic neurosis was made, with a possibility of simulation; neuritis, or bursitis was not considered to be present. This man thought his injury was much more serious than it actually was. He believed all the cords and muscles about his shoulder were torn. A dependent family added to his worries. He received compensation for total disability until he returned to work, the final payment being made him Oct. 2, 1915. When seen by the investigator, June 17, 1917, he reported that he had resumed his former employment at part wages, Sept. 30, 1915. He is still holding the same job at a better wage than he was getting when hurt. He was very cheerful and reported his general condition to be entirely recovered. He "felt good," but had some trouble in his right shoulder, especially in cold weather. However, the movements of this shoulder were normal. His hand grip registered: right, 44 kg.; left, 41 kg.

Case of Industrial Recovery Under Periodic Payments (Pension) Until Termination of Disability.—W. P. L., woman, aged 17, an apprentice stock clerk, earning $20 a month, was injured Nov. 3, 1916. She fell from a shelf, on which she was standing, to the floor, striking her head. She thereby suffered contusion of the scalp on the right side. She was unconscious for a few minutes following the injury and afterward was dazed, complaining of pain in her head. She had to be taken home in a taxicab. When seen by the neurologist, Dec. 9, 1916, she complained of the following symptoms: pain in her head when she tried to work or use her eyes; dizziness, especially when standing up; loss of appetite; sleeplessness; loss of weight; nervousness; easy fatigue. On examination it was noted that her extremities were cold. There

was excessive perspiration. The extended fingers showed a coarse tremor and the tendon reflexes were overactive. A diagnosis of traumatic neurosis was recorded, with a prognosis of disability of indefinite duration, probably from four to six months. This girl was not especially depressed over her condition, although she did feel that the nervousness which resulted from the accident would hinder her future success. While she had a pleasant home with her parents, nevertheless there is evidence that her symptoms were at least partially to be accounted for by suggestion on the part of her mother. The injured girl was allowed compensation for the time that she was away from work, until she was able to return, a total being paid her of $27.40. When seen by the investigator, June 15, 1917, she was in the same employ as when the accident occurred. She first attempted to work one month after the accident, but after a few days she discontinued work and remained absent until Jan. 15, 1917, since which time she has remained steadily at work at the same wage as before. She still suffers, however, from pain in her head and dizziness. Her fingers are still tremulous, and she states that she is very nervous. The coldness of the extremities and the excessive perspiration still remain. She appears to have regained normal weight and no longer suffers from loss of appetite. Although, on the whole, her symptoms were but slightly relieved, it appeared that they were not of sufficient severity to interfere with her usefulness.

Case Not Recovered Under Periodic Payments (Pension) Until Termination of Disability.—J. C., man, aged 36, painter, making $29 a week, was injured Sept. 24, 1914. As he was on his way to work carrying a ladder on his right shoulder, he slipped and fell on his left shoulder and back. He suffered a multiple fracture of the left scapula (spine, acromion process). In addition, there was evidence of injury to the spine in the lower cervical region. The injured man was seen by a neurologist, June 23, 1915. At that time he complained of the following symptoms: numbness of the right arm, especially in his hand on the ulnar side, and weakness and trembling of the right hand; pain in the left shoulder and back of the neck; nervousness; insomnia; loss of appetite; loss of weight (20 pounds), and change in disposition. On examination, the neurologist noted a fairly well nourished man, with a distinctly worried expression. A coarse tremor of the right arm, forearm, and hand was seen. When both hands were extended, tremor was noted in each. The dynamometer readings of hand grips were: right, 10.5 kg., left, 18.5 kg. Atrophy of the dorsal interosseous muscles of the right hand was noted. There was loss of sensation on the ulnar border of the hand and forearm, with complete loss of all sense of feeling below the cuff. Electric reaction indicated complete reaction of degeneration of the dorsal interosseous muscles of the right hand, with partial reaction of degeneration of the adductors and abductors of the thumb and the flexors of the little finger. The electric reaction indicated a definite injury to the nerves supplying the muscles, so that the neurologist diagnosed "traumatic radiculitis," "traumatic neurosis," the two separate conditions being both considered to be present. It was impossible to state whether the injury to the nerves or the traumatic neurosis was the main cause of the weakness of his hand. Oct. 6, 1915, the neurologist found the hand grips registered: right, 30 kg.; left, 30 kg. This man appeared to be very much depressed over his condition. He had present before his eyes a visible atrophy of certain muscles of his right hand, which tended to increase his belief in the seriousness of his condition. He realized that his injury was of his left side, but believed that the numbness had extended up through the nerves over to his right arm. He owned his own home and had only a wife dependent on him for support. Some of the physicians who attended him told him that the pain he felt in the back of his neck was due to an injury of the nerves. Aug. 28, 1915, he was allowed compensation from the time of his accident, of $17.81 a week, for temporary total disability. This compensation was to continue until the termination of the disability. The investigator found on his visit, June 17, 1917, that the injured man had not yet been able to do any work. He appeared, as before described, to be very much depressed. He stated that he now felt a numbness in his hand only. He still suffered from insomnia, nervousness and pain in the back of his head. His appetite was fair and his weight had improved. On examination, it was found that the tremor and weakness remained in his right hand. His extremities were cold, especially the right hand. A fairly well marked atrophy of the muscles, as before mentioned, still remained. The disturbance of sensibility consisted only of slight lessening of pain sense on the ulnar side of the right hand. The patient claimed loss of memory and mental deterioration. He was seen a second time by the investigator, Feb. 12, 1918. He stated that his condition was unimproved, except that he could move the fingers of his right hand better than he could before. He again complained bitterly of headache and insomnia, and stated that his memory was all gone. On examination, a tremor was noticed in the right hand as before. This was very slight when first seen, but increased markedly during the visit. There seemed to be distinctly less muscular atrophy of the right hand than at previous visit. The strength of the hand was improved. The injured man claimed, however, that he was still unable to hold a paint brush and had not resumed work. At a previous visit, he was unable to elevate his left arm, but this time he could bring same to horizontal, and the arm could be passively elevated to within 10 degrees of vertical. His memory was not as bad as he stated, as he remembered the previous visit of investigator, and that he had given a specimen of his handwriting. He also remembered the names of the men in the commission. He complained of some additional trouble at this visit: limitation of rotary movements of the neck, weakness of the spine and jerking and tremor of the legs. This latter was not observed by the investigator. In general, there has been distinct improvement in this man's condition, especially in the right hand, and there is evidence that his disability is due less to definite nerve injury than to traumatic neurosis.

Case Illustrating Persisting State of Neurosis Following an Industrial Accident in Which Compensation Was Not Claimed.—B. A., woman, aged 19, a clerk in a store, making $7 a week, was injured, May 12, 1915, by catching her fingers between the knives of a meat slicing machine, thereby losing the middle and ring fingers of her left (major) hand through the distal joint. The injured girl's permanent disability was rated as 4¾ per cent., which entitled her to nine-

teen weeks' compensation at $4.17 a week, making a total of $79.23. A visit was made by the investigator, Aug. 3, 1917, in the course of routine investigation of permanent injuries. The injured was then employed as manager of local telephone office at a salary of $35 per month. She had returned to her former employment six weeks after the accident, and worked for five months, but then had to quit on account of nervousness. After having been out of employment for six months, she worked for one month in the summer of 1916, at the telephone office. She was unable to continue this employment and was unable to work again until November, 1916, when she again worked two months at the telephone office. She again had to stop work on account of her general condition after two months, and remained away until April, 1917, since which time she has been steadily in the employment of the telephone company. In the two years which had elapsed since the injury, she had been out of work fourteen months. She still has to take an occasional rest from her work, but as manager of the office, she is able to arrange her work so that she can rest when she is feeling bad. She stated that while before the accident she was known as "the healthiest girl in M——," she had never felt entirely well since her injury. Her disposition has become irritable, so that she is very easily upset by the slightest annoyance. Physical weakness is present. She suffers from severe headaches at the back part of her head. Her fingers tremble sometimes to such an extent as to interfere with her work as telephone operator. She suffers from sleeplessness, so that a hypnotic drug is often necessary. She has suffered from a numb feeling of the entire left hand. She states that her general nervous condition is showing gradual improvement. Little was to be noticed on examination except general signs of nervousness, such as tremor of the fingers and excessive perspiration. She had never considered herself entitled to any further compensation, on account of the general disability which she had suffered in addition to the local injury. She further understood perfectly that it was entirely impossible for her to have an additional award, on account of the time which had elapsed.

CONCLUSIONS

1. Traumatic neurosis is a curable affection.

2. Of the psychic factors influencing the establishment and course of traumatic neurosis, compensation is one of the most important. That it is not the only factor, and that so-called "compensation neurosis" is not identical with traumatic neurosis is exemplified by cases here reported in which the patients recovered under the periodic payment system of compensation, and accident cases followed by a state of psychoneurosis were found to exist, in which compensation was not demanded or received.

3. Recoverability is favorably influenced by the following conditions: (*a*) if the patient is in a satisfactory environment and not subjected to unfavorable suggestion; (*b*) does not have a fixed belief that he has been seriously and permanently injured, that he has received improper medical or surgical treatment and cheated in settlement; (*c*) does not have an organic disfigurement or defect as result of the accident; (*d*) remains cheerful; (*e*) has symptoms of predominantly neurasthenic nature; (*f*) gets an early lump sum settlement.

4. The character of the original injury is of little importance in traumatic neurosis.

5. For a favorable hypothetic case as outlined above, a disability of considerably less than one year might be confidently expected. Added unfavorable factors affecting prognosis so complicate the outlook that a definite fixation of duration of disability may be impossible.

6. A case of traumatic neurosis existing over one year, with marked symptoms affecting earning capacity, is to be regarded as one in which there are serious psychic factors present unfavorable to recovery, and these factors should be investigated and, if possible, removed.

ABSTRACT OF DISCUSSION

Dr. Francis X. Dercum, Philadelphia: I would like to ask whether it is possible to make, and whether Dr. Schaller did make, investigation as to previous condition of these patients. It is a well known fact in connection with the accident neuroses that where numbers of persons are exposed to accident, only a certain percentage develop hysteria. Investigation also has shown that the latter reveal a previous neuropathic history in the great majority of cases. The accident merely offers an occasion for the renewed manifestation of preexisting nervous conditions. In regard to lump sum settlements, it is a remarkable fact that in Denmark where an early and lump sum payment is made in accordance with the findings of the physicians appointed to examine the case, something like 93 per cent. of cases return to work in a comparatively short period. Where payment is made monthly, as in Germany, where there is a system of pensions extending over years of time, these patients never get well. Therefore the methods of payment have a great deal to do with recovery.

Dr. Andrew L. Skoog, Kansas City, Mo.: Dr. Schaller's tables were interesting. The same question comes into my mind that Dr. Dercum inquired about. I have done a certain amount of work for corporations in investigating some of these litigation cases, and I have found a number in which there were preexisting neurotic evidences. Only recently I examined a woman who was run down by the investigators of the street car company who secured testimony of neighbors to the effect that this woman frequently and suddenly called in physicians because of these cerebral attacks, and yet she went on the witness-stand and denied that she had ever had any previous illnesses of this kind. I believe that in a certain number of these cases in which there is some mild injury, the neurotic elements are excited, and that accounts for a certain percentage of cases that do recover completely. It is undoubtedly true that it takes a neurotic disposition to produce a case of traumatic neurosis. It is sometimes also very difficult to distinguish between malingering and traumatic neurosis. A few years ago, in consultation on a case in which another man claimed that the patient was suffering from traumatic neurosis, I contended that the case was one of malingering. About two months afterward a settlement was made, when he recovered quickly. Shortly after this he began to quarrel with a woman about his share of the loot. This woman brought the patient to me and claimed she was his sister, but it developed that she was not a sister and that she was conducting the case, he being a worker for one of the stock yards companies.

Dr. Francis A. Ely, Des Moines, Iowa: One point which the essayist has shown most conclusively is the predominating psychic factor in all of these cases. I think, perhaps, all of us have recognized the relatively few cases in which actual physical trauma has been the essential etiologic factor, but the sum total of the evidence brought forth here, is distinctly in favor of the condition being due purely to an abnormal psychic state.

I have had two or three strikingly amusing circumstances brought out in connection with the remote history of some of these traumatic neuroses, in making life insurance examinations. In three or four instances I have examined for life

insurance some years after, the individuals who had claimed permanent injury, and in getting my data, it was exceedingly amusing to note the manner in which the individual jumped from one side of the fence to the other. The curability of the cases, when it came to the point of getting the life insurance was exceedingly apparent, and the thought came to me at these times, that possibly it might be interesting to secure some data on this subject, from the standpoint of insurability. When you approach your applicants under conditions of this kind, you are almost sure to receive a positive answer in regard to whether or not they have recovered. The only difficulty is, that it drives the individual into a desperate corner, so far as his veracity is concerned.

DR. JULIUS GRINKER, Chicago: In the litigation cases one physician will testify that the case is one of ordinary neurosis on a hereditary tendency, because he is interested in finding neurotic symptoms of long standing for the side on which he is engaged; another physician, equally experienced, but with a preference for the other side, has failed to discover neurotic tendencies in the patient's previous life history. Both men are equally sincere, but one is for the plaintiff and the other for the defendant which means that their judgment is unconsciously leaning toward their employer's interest. If a man has been a neurotic by constitution and make-up, and has never shown it except after a trauma, the case is likely to be a traumatic neurosis, because many people have neurotic tendencies, but do not develop neuroses. Viewed in this light, the statement of Dr. Dercum that most cases of traumatic neuroses have shown a tendency to neurosis before the trauma, is not surprising. I have seen a number of cases of traumatic neuroses in those who have not shown signs of nervousness before a certain trauma has occurred, and I believe we must recognize those cases as true traumatic neuroses.

DR. EDMUND JACOBSON, Chicago: Dr. Schaller has brought out statistics on a point which has a certain therapeutic value; and that is cheerfulness. The doctor's statistics have brought out that in a case of traumatic neurosis at least he has chanced to find that such patients as have conserved a pleasant attitude have on the whole recovered very much more quickly or more efficiently than the others—76 per cent., I believe, as compared with 11 per cent. So long as the patient can be kept cheerful, just so long are the various nervous symptoms kept in abeyance, and it is only when unpleasantness in the mental aspect arises that the symptoms become obnoxious. The sign in business offices, "Be Cheerful," draws attention to its importance, and perhaps at some future time it would not be too much to say that if one could keep neurotic patients cheerful a great proportion of them would be cured. A persistent cheerfulness is to a neurosis perhaps something of the same sort as iron is to anemia.

DR. C. R. BALL, St. Paul: I wish to ask the essayist whether he noticed any difference, not only in the character of the symptoms present but as to course and prognosis, in those cases which develop the symptoms immediately after the accident, and those which manifest their symptoms two or three weeks or, perhaps, several months after the accident.

DR. ELMER E. SOUTHARD, Boston: I think all the industrial accident people I have heard say anything about this matter feel about the lump sum settlement as Dr. Schaller does. I would like to ask Dr. Schaller how many nonneurotic cases there were during the period in which the neurotic cases were developing. We find that it is a neurasthenic problem of great breadth. The cases that are sent to us are of the most complex nature. I would also like to ask if the Wassermann tests have been of use in these cases. We have found a great number of subnormal persons whose prognoses depend perhaps on their ability to rationalize. Dr. Idler worked on this matter of nonemployment and found that the paranoiac, the feeble-minded, and the moody, up-and-down cases, were the big problems. I think it is the duty of every neurologist and psychiatrist to take as much as possible of the burden from industrial persons. I had occasion to talk with the head of a copper corporation which hired thirty-eight physicans to handle their cases, and he stated that none of them seemed to know anything about these conditions. If we can get our kind of work into industry we can do much; we can exclude a great many persons who are potential neurotics. So far as so-called shell shock is concerned, it is true that heredity counts, but it is also true that the perfect type of person might get shell shock, and this might be true of conditions arising from injury in industrial concerns. If we could apply the Wasserman test and exclude the positive type, the feebleminded and also the I. W. W., taking out all these potential neuropaths, the industries would boom.

DR. G. A. MOLEEN, Denver: I am quite sure that some of the traumatic neuroses that find their way into the courts are not neuroses. They should be investigated pretty thoroughly. A case in point: A man fell from a car, was picked up unconscious, and later sued the company. After thorough investigation it was evident that he had had a capsular hemorrhage which was coincident with the stopping of the car, but the company was blamed for bringing about the hemiplegia. It is generally known that trauma or shock will bring about a confused state in a paretic who appears otherwise normal. Two such cases have come under my observation within the last year, one of them claiming a railroad injury and in whom many evidences of paresis were present. However, the mental symptoms were not present. He made a claim of permanent injury. Another man within two months made a claim for automobile injury in which definite evidences of paresis were found. It is a fact that those cases which have not recovered symptomatically and those which have pursued an unfavorable course give much encouragement to the lawyers who prosecute these cases. Therefore it is important for us to look into the true cases of injury and the true cases of disease which have been exaggerated by the accident.

DR. THEODORE DILLER, Pittsburgh: These cases Dr. Moleen referred to are few indeed, for they could hardly escape recognition by subsequent observation. The studies in shell shock which are now being made by competent observers at the front are going to shed a great deal of light on this whole question. For instance, we are told by these observers that German prisoners seldom exhibit shock. We are told also that one of the best cures for shell shock among the allied soldiers is this: A prompt and positive assurance that the victim shall not go back into the trenches. This seems to me to point to the conclusion that self-interest, interest as regards the future, has a great deal to do with the whole thing. Is not that true also in these cases of so-called traumatic neurosis? Is it not a matter of self-interest and uncertainty as to the future? Certainly a great desideratum is prompt settlement in these cases, and companies should be protected by limitation of damages. It is a shame that these unlimited and outrageous amounts should be awarded so frequently in these cases of traumatic neurosis or litigation neurosis.

DR. RALPH REED, Cincinnati: I agree that there are certain subtle emotional factors that might be considered in these cases. It would be a matter of interest if the essayist could record the financial condition of these traumatic cases and the relative monetary importance of the possible settlement to the patient. If he is very poor, a small settlement looks large to him and, perhaps, tends to accentuate the results of the injury. I think also that general happiness or unhappiness in life has a great deal to do with the development of any type of neurosis. Therefore, it would be interesting to ask whether these patients who developed traumatic neurosis were happy prior to the development of neurosis, because, if not, the traumatism might possibly have acted merely as an influence to bring about an accentuation of the unhappy mental state that the patient had always suffered. Then there is the factor of revenge. I think many of these injured people have the feeling of wanting to be revenged against the company or the person from whom they feel they have received this injury. They look on their experience as justifying the attitude they have taken irrespective of the actual amount of the financial settlement.

We might consider this factor: The long dragging out of the case through the courts, the getting on the witness-stand, etc., helps to exalt the personality of a patient who otherwise

may have been a very obscure individual; all this interest on the part of the physicians, the lawyers, the court and the friends, favors an actual exaltation of the personality of the plaintiff from which he derives a pleasure very definite and satisfying.

Dr. Meyer Solomon, Chicago: Most of the speakers assume the attitude apparently that suggestion has much to do with the symptoms that patients have in these cases. It seems to me that the view that the phenomena are due to suggestion does not apply at all to the cases that show prolonged sensorimotor symptoms—anesthesias, paralyses, the loss of sight and hearing, etc.,—that go on for weeks or months. I cannot conceive how simulation, suggestion, the power of ideas, can bring about a prolonged disturbance of the sensorimotor apparatus. Ideas, whether in the form of suggestion or simulation, may bring about temporary disturbance in the sensorimotor apparatus, but it seems to me an impossibility that ideational phenomena or manifestations may show themselves as really prolonged phenomena in the form of paralyses and anesthesias that go on for weeks, months or years. Therefore in these cases where there is positive evidence that the patient really has an anesthesia, for instance, hemianesthesia, loss of hearing or vision, and the like, if you can exclude simulation and exaggeration, the condition is due to physiological exhaustion of the centers, and the question of compensation, etc., does not play very much of a rôle.

One other factor to consider is this: Ideas, per se, the attitude of the individual, cannot produce any phenomena of a prolonged nature that affect the voluntary or involuntary nervous system. Heart disturbances, analgesia, and similar manifestations, cannot result from purely ideational states, and in post-traumatic states in which you have prolonged phenomena which affect the voluntary nervous system or the involuntary nervous system, the condition is not due to the mental attitude of the individual, but due to physiologic instability of some part of the body. We can understand, therefore, that in many of these people we have a history, extending back for years, perhaps, of nervous instability, and as a result of the shock incident to the accident they have an enhancement of all these phenomena; but the phenomena they have are really true and definite phenomena, just as fixed as if due to a true organic injury of the brain. We cannot, therefore, assume the attitude that the patients who show these symptoms dragging along month after month are affected by symptoms due to their mental attitude. In the British Army soldiers are receiving compensation for injury due to shell shock, and it seems to me that the traumatic neuroses are nothing more than a larger group, which includes the shell shock cases.

Dr. William A. Jones, Minneapolis: After years of experience I am of the opinion that the majority of these litigation cases are functional or hysterical; that a prompt settlement is the greatest thing that ever happened to the injured, whether he is going to recover or not. It is undoubtedly true that many people do recover under prompt settlement. I have seen many of these cases and know this to be true. Then, too, the effect of prompt settlement is very good on the rest of the family, it takes away from them the constant wearing out process of possible litigation.

Dr. Walter Timme, New York: I think there is very little doubt that there are a certain number of cases which, while they are called traumatic neurosis, are not that. These are among the cases that do not recover after settlement. They give practically the same symptoms as does the traumatic neurosis case. The most marked symptom is the asthenia. These are the cases which, following the accident, are intensely shocked. Usually the trauma is in the lower region of the spine or over the abdomen, causing profound shock to the proverbial ganglions of the sympathetic nervous system. Witness the following: A policeman, while rendering service on a trolley-car during a street-car strike, was standing on the car when it was suddenly brought to a stop by strikers. He was thrown forward, his abdomen striking against the brass rail of the platform. The company settled with him for five or six thousand dollars and believed he would recover. He has never recovered to this day. What happened was this: His sympathetic nervous system sustained a shock through the plexuses of the abdomen. His blood sugar content went down and remained permanently between 60 and 65 milligrams to 100 c.c. of blood, which is far too low, and there could be produced the white line of suprarenal insufficiency. Blood pressure was 100 mm. That man probably suffered a trauma of such an extent that he has never recovered. You can improve those cases by appropriate treatment, but they never recover, and a great many of the cases of so-called traumatic neurosis are of that type.

Dr. Charles W. Hitchcock, Detroit: In a recent discussion on this subject an able attorney from Detroit cited a case that illustrates the question and possible influence of "lump sum" settlement. The plaintiff had played the game so well that he had been awarded quite a large sum in settlement. He went to the attorney's office to receive his money and when the check for this large sum was handed to him he threw aside his crutches and endeavored to kick the chandelier.

Dr. Albert E. Sterne, Indianapolis: It seems evident from this discussion that we are going far afield in our ideas in regard to traumatic neuroses. In the first place, everybody who meets with an accident and has a claim for damages does not by any means suffer a traumatic neurosis, and, second, many people suffer veritable traumatic neurosis after injury of one or another type in which the question of damage does not arise at all, where we find the development of conditions following an accident due to their own personal neglect, or some other thing, in which the question of compensation cuts no figure whatsoever. Now shall we, simply because the element of compensation is attached to a case, arbitrarily designate that a traumatic neurosis, while in the case of another person to whom this question does not apply, but who has some form of obscure functional or organic nervous malady, we give another name? That is not neurology by any means. As a matter of fact, as we see by the working out of the Workmen's Compensation Act, there can be no doubt but that in a large percentage of cases the symptoms of purely nervous type disappear when the matter is settled. But when it comes to the straight-out cases of injury, of symptomatology after injury, which we could frankly, outspokenly and emphatically class among the group of traumatic neuroses, I do not think that that logic pertains at all. Traumatic neuroses per se is a definite thing. The true case is the result of a profound impression. The effect on the sympathetic autonomic nervous system is marked, and we are dealing with conditions of profound gravity. Real cases of symptom-complexes which arise after injury are among the most difficult with which we are confronted. It is a difficult problem, sometimes, for me to decide whether the individual is a malingerer. In malingering I think we have not a traumatic neurosis, but a simple case of fraud, and that has nothing whatever to do with the veritable condition which we call traumatic neurosis, a malady that seems quite in line with the other conditions we see, in which compensation plays no rôle at all, and in which we may fairly well assume that we are dealing with a case of true traumatic neurosis.

Dr. Albert F. Moffet Greene, Kansas City: I would ask Dr. Schaller to define traumatic neurosis. The subject has been confused with malingering neurosis as he sees it.

Dr. Walter F. Schaller, San Francisco: Traumatic neurosis is a neurosis following an accident and is not simulation. In reply to the question of hereditary or personal neuropathic predisposition: We had these factors in mind in considering prognosis, but found it impracticable to obtain reliable data for statistical purposes in this study, for if in an industrial case, you question the patient as to whether he is naturally of a nervous disposition, or if he comes of nervous stock, he will usually say "no," because as far as nervousness is concerned he feels that his is not a condition for industrial compensation and an admission to this effect would unfavorably influence his medical report. Scarcely any of our cases admitted personal nervous temperament or nervous heredity. Cases manifesting symptoms only after a latent period between injury and manifestation of the neurosis, I would classify as "secondary neuroses." Generally they are the

most aggravated and persistent forms. We had about six psychopathic cases following trauma. They were not included in this series. Of these cases, there were perhaps two cases of paresis. A routine mental rating was not made in the series but only in those cases in which a more or less pronounced mental deficiency was suspected. I do not recall such a case in the fifty cases here reported. As regards simulation: we did not find a case that we considered to be one of out and out simulation, although exaggeration of symptoms were not infrequent. A number of patients suspected of simulation were followed by detectives at the instigation of the insurance companies interested. As a rule, these patients had been examined by a number of physicians and they had come to us as referred cases after the neurosis had existed for some time. The orthopedists and surgeons were generally glad to refer these cases, because they could do nothing with them. Dr. Reed asked about the financial status of these individuals. Time did not permit me to go into detail about this aspect of the problem, but in the original investigation, the financial status as regards wage and amount of compensation was given in detail.

LUMBAR PUNCTURE IN MENINGEAL HEMORRHAGE OF THE NEW-BORN *

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Hemorrhage of the brain in the newly born is by no means a seldom accident. It has been stated that this is the etiologic factor in one third of stillbirths. It follows in all varieties of deliveries; even spontaneous, easy deliveries are not free from this danger. This condition, first properly interpreted by Sarah McNutt, in 1885, forms one of the darkest chapters in pediatric medicine. More than thirty years before Little had described the spasticity of the muscles and the idiocy following the lesion and recognized its relation to long and protracted labors. While the majority of the infants so affected do not survive the birth act, a large group live several days, the first few hours not offering the slightest suspicion of the fatal outcome which is soon to follow. The group that survives and is able to weather the cerebral compression is only too well known to all of us.

SEAT OF HEMORRHAGE

That the location of the hemorrhage varies in the different cases cannot be gainsaid. The blood may be in the brain itself, the ventricles under the dura or arachnoid, at the convexity or base. The consensus of opinion seems to be that the meninges are the usual source of the bleeding, so that these cases are usually referred to as meningeal hemorrhage. The pressing against and over one another of the cranial bones with the laceration of the delicate blood vessels of the meninges is a logical explanation of what occurs. The delicate cerebral veins which course over the convexity to the longitudinal sinus are easily torn, as the parietal bones are pressed over one another. These are the supratentorial cases. Similarly in the infratentorial ones, the small veins ending in the lateral sinuses are torn as the occipital bone is squeezed under parietals. The sinuses themselves may be ruptured, but this is unusual.

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CLINICAL PICTURE

The diagnosis of this condition at times is very problematic; again the symptoms are so outspoken that no mistake can be made in recognizing the true condition. For several hours after brith, except for a certain degree of asphyxia which seemingly has been overcome, the condition of the infant gives no hint of what is actually going on. As the hours go on more and more blood oozes from the vein, and we soon have evidence of cerebral compression. The distensibility of the sutures and bones of the infant's skull plays an important part in the delay of the appearance of increased intracranial tension with all its symptoms.

The vagus, vasomotor and respiratory centers all betray the effects of irritation. The pulse is strong, full and at times slow; the skin is a peculiar white color (arterial constriction); the respiration shows distinct changes, being superficial and rapid or again deep and pauseless. The reflexes are increased, and tonic and clonic contractions of the muscles of the face and extremities, followed by paresis, are usually seen. The often repeated convulsions with stupor, the bulging fontanel and wide gaping sutures are perhaps the most striking symptoms.

A close analysis of the symptoms reveals that whether the hemorrhage is located supratentorially or infratentorially, the clinical picture will vary. In the supratentorial hemorrhages, the blood covers the convexity of one or both hemispheres and is effectively prevented from reaching the base by the tentorium. In the infratentorial cases, the blood occupies the subarachnoid space covering the cerebellum and surrounding the medulla and extending into the spinal canal.

SUPRATENTORIAL HEMORRHAGE

Supratentorial hemorrhage is characterized by an early appearance of a bulging fontanel. The baby is very cross, cries a great deal, sleeps but little and refuses the breast. Seitz[1] asserts that this restlessness and crying is due to pain experienced by the infant as the result of tearing of the dura by the hemorrhage. The cyanosis is late in appearing and not especially pronounced, owing to the fact that the respiratory center is not affected until toward the end.

INFRATENTORIAL HEMORRHAGE

In infratentorial hemorrhage the fontanel is slow to become distended and must first await the development of a collateral edema. The infant is quiet, wants to sleep a great deal, is apathetic and early shows a cyanosis. Neck rigidity and tonic contractions of the muscles of the extremities are present as a result of the irritating presence of blood in the upper part of the spinal canal.

REPORT OF CASES

We have met with nine cases of this accident. Four patients died in the early days after birth, one having been submitted to craniotomy; death occurred in this case twelve hours later, and a large hemorrhage was found at necropsy at the base of the brain. Two survived and are typical examples of Little's disease; three were treated by lumbar puncture, two making a complete recovery. The third patient continued to have convulsions with spasticity of the extremities; death occurred at 9 months. Necropsy by Dr. Archibald showed slight adhesions and flattening over a small area of the right hemisphere.

1. Seitz: Arch. f. Gynäk., 1907, 82, 344.

The three cases that were treated by lumbar puncture will be reported somewhat in detail.

Case 1.—Baby K., now approaching the third year, twenty-four hours after birth developed severe convulsions which continued in spite of chloral and bromids. Eighteen hours after the onset of the convulsions, I saw the patient at St. Ann's Hospital, in consultation with the obstetrician, Dr. Spain. The anterior fontanel was bulging, the sutures were separated and convulsion was following convulsion; previous to their onset, the baby had been quiet. The skin was pale white with a slight icteric hue; the respiration was irregular, now deep and again superficial. There were no clonic or tonic contractions and no paralysis; the baby swallowed poorly. The correct interpretation of the symptoms was only too apparent, and lumbar puncture was immediately performed. Thirty c.c. of pure blood immediately flowed from the needle; the distension of the fontanel receded; the infant became quiet, and there was no return of the convulsions. The following day there were slight tonic and clonic contractions of the left arm and face. These were missed the next day.

We believed that we had prevented the early death of the infant by relieving intracranial pressure, but fully expected that at the ninth or tenth month the infant would develop a spasticity of the extremities. That it would be possible to cure such a hopeless condition by a trivial operation was beyond our most sanguine expectations. This child is now nearly 3 years of age, and is perfectly normal in every respect, with normal intelligence.

Case 2.—Baby N. was first seen at the age of 6 days, at St. Ann's Hospital; the presenting symptom was a severe icterus, which was of such intensity as to make one consider the possibility of an obstruction in the bile passages. Severe vomiting was also present, which was relieved by stomach lavage. Twenty-four hours later, a profound stupor developed, the fontanel was bulging with wide separation of the sutures and the respiration was very much embarrassed. There had been no convulsions and no muscular spasms. At birth the infant weighed 9 pounds and Dr. Porterfield, the obstetrician, stated it had been a difficult forceps delivery. It was striking that in spite of the well developed infant, it would not cry and was very listless and apathetic. The icteric hue of the skin turned to a deathly pale color; the infant refused the breast and swallowing was difficult. The head appeared very much enlarged, globular in shape, with the frontal eminences very prominent. One was reminded very much of hydrocephalus. The baby's condition was desperate, and it appeared that it could live but a few hours. A fatal prognosis was given, and an attempt was made to reconcile the mother by informing her that idiocy and paralyzed extremities would be in store for the infant, if it were to survive. Lumbar puncture was performed and 60 c.c. of blood came gushing out; the fontanel receded only to become distended again in a few hours. The respiration became better and the infant brightened up considerably. The following day lumbar puncture was repeated with a free flow of blood from the needle; the third and fourth day this was repeated owing to the refilling of the anterior fontanel. In all 240 c.c. were removed, but it was apparent that there was considerable admixture of cerebrospinal fluid in the last 60 c.c. The anterior fontanel was still prominent, but owing to the marked improvement in the infant, it was decided to stop the lumbar punctures. The tape line revealed the circumference of the head to be 14.5 inches. It was necessary to nourish the infant artificially; it continued to thrive, and now at the age of 14 months there is absolutely no evidence of spasticity, and mentally the infant is all one could expect. The baby's recovery was a matter of the greatest wonderment to all who saw it.

Case 3.—Baby C. was delivered by Dr. Swahlen at St. Anns Hospital; the birth was easy and spontaneous. The infant was cross and fretful after birth, crying a great deal, and on the second day it developed repeated convulsions. Chloral was unable to influence them. The bulging fontanel gave evidence of increased intracranial pressure. Lumbar puncture was performed and 7 c.c. of pure blood flowed from the needle. Convulsions ceased temporarily but twelve hours later returned again. The following day lumbar puncture was repeated and cerebrospinal fluid of a pale pink color was removed. Convulsions continued and spasticity of the extremities developed. Death occurred at 9 months as a result of a nutritional disturbance; the necropsy results are reported above.

This case doubtless belonged to the supratentorial type; the blood removed by lumbar puncture may have come from a slight infratentorial bleeding or again some of the blood may have gained access to the cranial subarachnoid and then found its way to the spinal subarachnoid space. That the blood could have resulted from the injury of a small vein at the site of puncture is not probable, owing to the fact that the convulsions undoubtedly were temporarily relieved.

COMMENT

That it is possible not only to relieve but actually cure some cases of meningeal hemorrhage of the newborn by lumbar puncture is absolutely certain. Green[2] of Boston reports a case of intracranial hemorrhage completely cured by lumbar puncture. His case developed convulsive twitching of the extremities the second day, accompanied by cyanosis, nystagmus and apnea. The convulsions became more severe, and on the fourth day lumbar puncture was performed with removal of 5 c.c. of bloody spinal fluid. This brought about a remission of the symptoms, and the lumbar puncture was repeated for the fourth time in as many consecutive days. At 4 months of age, the baby was normal in every respect. Lippman[3] of New York similarly reports complete recovery in a case of meningeal hemorrhage following lumbar puncture. One puncture was sufficient, and 25 c.c. of slightly yellow tinged cerebrospinal fluid were removed. The convulsions, restlessness, rigidity, crying and bulging fontanel all cleared up.

It is apparent that a supratentorial hemorrhage of any size cannot be relieved by lumbar puncture. The blood is usually located subdurally and, therefore, cannot readily find its way to the subarachnoid space. Furthermore, it is not easy for the blood to pass into the spinal subarachnoid owing to the interference at the foramen magnum. In this type of case, relief must come from above and craniotomy or incision through the coronal suture preceded by aspiration of cranial subdural space as practiced by Henschen[4] should be considered. Cushing,[5] in 1908, reported nine cases of intracranial hemorrhage, with a cure of four as the result of craniotomy. In the infratentorial type of case, nothing can be accomplished by an operation on the cranium, as the hemorrhage is not accessible. In all cases of suspected meningeal hemorrhage, lumbar puncture should be performed, as even in the supratentorial type of hemorrhage not only will there be almost a certainty of clinching the diagnosis, but the measure may be of definite therapeutic value, even resulting sometimes in a perfect cure.

CONCLUSIONS

From the fact that the condition is by no means rare, the possibility of meningeal hemorrhage should be ever in the minds of obstetrician and pediatrician

2. Green: Boston Med. and Surg. Jour., 1916, 174, 947.
3. Lippman: New York Med. Jour., 1916, 102, 263.
4. Henschen: Verhandl. deutsch. Gesellsch. f. Chir., 1912, 41, 271.
5. Cited in Keen's Surgery, W. B. Saunders Company, Philadelphia, 1908.

in any obscure illness of the new-born infant. With any symptom of increased intracranial pressure, lumbar puncture should be immediately performed. This may not only clear up the diagnosis, but may actually save the infant from a fate which is one of the saddest that could possibly befall it.

ABSTRACT OF DISCUSSION

DR. FRANK C. NEFF, Kansas City, Mo.: Intracranial hemorrhage in the new-born is not a rarity at all, although I believe that the pediatrist is usually called in to see the patients that die. The importance of the condition is emphasized because of its frequency, because of the mortality, and because of the serious late manifestations of the condition. We recognize these children in later life as idiots, with various sorts of palsies, at a time when nothing can be done for them. Whether anything can be done, and I have no doubt it can, as Dr. Brady says, it is certain that diagnosis is of great value at the time. This emphasizes what we have already known for a long time, that the pediatrist should have, possibly, the entire care of the new-born babe from the time of birth. We should have a chance to diagnose and do what can be done for these children at an early stage. The question of lumbar puncture is one of great importance as a diagnostic measure depending on whether the trauma is above the tentorium or below. It probably has therapeutic value by relieving compression.

DR. JOHN A. FOOTE, Washington, D. C.: I do not think that any pediatrician can say he has not seen a number of these cases. He is frequently called in at the end, when there is no doubt as to the diagnosis. Without slandering any of the other members of the profession, it is fair to say that the causes of intracranial hemorrhage in the infant do not always seem to be well understood. Perhaps, I might put that in a better way—it is really not a lack of knowledge, but a wrong knowledge. A great American humorist once said "It is not ignorance that makes so much trouble in the world, but knowing so many things that are not so." Many physicians seem to think they need only look for intracranial hemorrhage after a forceps operation or some unusual trauma. We know the condition occurs in two great classes—the first class, rapid labor, and the second, breech presentations, in which great pressure is made on the after-coming head. But I am firmly convinced that all of the causes are not maternal. Probably many cases occur after rapid delivery in which the cause lies not with the mother but with the child. I am sure many of us have seen hemorrhage of the new-born in connection with intracranial hemorrhage in infants. I think we would see many more if the children lived long enough. I think many of the cases which do not show rupture in the meningeal artery are not hemorrhages so much as oozing of the vessels of the pia, perhaps not producing the classical symptoms so early as hemorrhage from the meningeal artery. For that reason we can say, perhaps, that there is a hemorrhagic tendency, some degrees of permeability of the vessels, not going on to the extent that will produce characteristic vomiting of blood, but increased fragility of the vessels of the infant, which does produce, even after rapid labor, symptoms of hemorrhage of the brain. There is no doubt that great relief can be obtained by lowering intracranial pressure through lumbar puncture. As has been stated by the essayist, it is of great value as a diagnostic measure, and should never be omitted in any case of intracranial hemorrhage in an infant. It certainly can do no harm to use some method to increase the coagulability of the blood—blood serum, citrated blood or something of that sort, in attempting to offset the tendency to hemorrhage that undoubtedly exists in many of these children.

DR. FRANK C. NEFF: I do not know whether this section has ever taken up the question of the effect of pituitary extract in the new-born. We are called to see babies where it has been used during their birth. I have seen more than one death from meningeal hemorrhage in the same family where pituitary extract was used in all the cases. I think this should be set down as a probable cause of hemorrhage.

DR. LANGLEY PORTER, San Francisco: I want to emphasize the experience of Dr. Neff. In three cases in my own experience I have seen hemorrhages of the new-born after the use of pituitary extract.

DR. JOHN S. DAVIS, Dallas, Texas: I have seen six or seven of these cases; four of them have come to operation. We were unable to relieve the pressure entirely by lumbar puncture, and we opened through the suture, a proceeding with which you are familiar. I recall one case in which pituitary extract in as small an amount as 0.5 c.c. brought on violent pains, and caused extensive hemorrhage. Lumbar puncture was done, and seemed to relieve the pressure. The child has no paralysis, but the mental functions are much retarded. This case occurred in the family of a physician. In our experience, we do not always find bulging of the fontanel, notwithstanding the hemorrhage may be above the tentorium. I think pituitary extract certainly does a great deal of damage in some cases.

DR. LAWRENCE T. ROYSTER, Norfolk, Va.: I want to emphasize a point brought out by Dr. Davis, and that is that we must not rely on bulging of the fontanel for diagnosis. Some of the best descriptions of this condition have been those that described the "boardlike feel." It is more common than the bulging, in my experience, regardless of where the hemorrhage is. I do not think we should emphasize bulging of the fontanel, as usually it is not present.

DR. JULES M. BRADY, St. Louis: As Dr. Royster said, bulging of the fontanel is frequently absent in these cases. Some of these cases of intracranial hemorrhage are quite deceiving, as one will readily find on studying the literature. Sometimes, the only indication is listlessness of the baby and a deathly pallor, due to arterial constriction. In perusing the textbooks, one will find the value of lumbar puncture hardly mentioned. Dr. Pisek in Sajous' practice, maintains that it should be done in these cases. I think the value of this procedure should be emphasized, and I think that is the first thing we should do in suspected cases of intracranial hemorrhage. I feel that if we can see these babies early, when the first symptoms begin, we can probably get a fairly correct idea as to where the hemorrhage is located. It is generally thought that in hemorrhages in these little babies it is difficult to find out where the bleeding is. It seems to me in cases above the tentorium incision below the parietal suture, preceded by lumbar puncture, to locate the bleeding, is probably better than the operation suggested by Cushing of Baltimore.

Conditions Relative to Medical Students in the War in France.—The *Journal de Médecine de Bordeaux* discusses the centers for medical instruction that have been recently organized in the army zone to enable mobilized medical students to continue their medical course without depriving the army of their services. The writer remarks that the question of medical students in the war is a regular Chinese puzzle, and that the four years of war do not seem to have brought its rational solution any nearer. The measures taken to date reveal a military more than a medical influence, but courage and heroism and devotion do not make a doctor of a young man any more than they alone can make an artist of him or a first class aviator. Technical instruction is the only solid basis for a physician, and this can be given only in centers equipped for such technical instruction. The hastily organized *centres d'instruction* in the *zone des armées* are absolutely inadequate for proper training for the practice of medicine. The solution of the problem, he insists, is to send the medical students back to the medical schools, which are equipped and ready for them, and then have them given intensive and speeded-up courses, crowding into three months the work that is spread out over several months in peace times. Military surgery and military medicine can be taught in the army zone centers, but these are only a small part of medicine in general, and this can be taught only in a medical school. The writer adds that the students should not be sent to one or two selected schools but should be distributed so that no school will be swamped with numbers of students too large to handle for effectual instruction. This is the solution of the medical student question to which Italy has come after vainly trying to solve it by organizing a "camp university" near the front.

OIL OF CHENOPODIUM IN THE TREATMENT OF AMEBIC DYSENTERY*

PRELIMINARY REPORT

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The treatment of amebic dysentery has always been a matter of considerable difficulty. A large number of drugs have been used at various times with varying degrees of success. As listed in Hare's "Practical Therapeutics," these drugs include arsenic, mercuric chlorid, copaiba, ergot, lead acetate, ipecac, opium and camphor, and magnesium sulphate; also enemas of boric acid, zinc phenolsulphonate, copper sulphate, a cresol preparation, hamamelis, quinin, and silver nitrate. Ipecac has gradually forged ahead of the other drugs, and its active principle, emetin, has been found to be extremely effective in acute amebiasis, when given hypodermically.

A careful perusal of current medical literature, however, shows that physicians working in tropical countries are apparently not satisfied with emetin. While excellent results have been obtained with it, it is by no means atoxic, and untoward symptoms and even deaths have been attributed to its administration.[1] Moreover, there are cases of amebiasis which fail to respond to the emetin treatment. The results of treatment with epinephrin, an ipecac preparation, bismuth, cephaelin, creosote, emetin and arsenic, emetin bismuth iodin, emetin hydrochlorid, eucalyptus, ipecac, neo-arsphenamin (neosalvarsan), protargol, arsphenamin (salvarsan), simiruba, spartein, tannalbin, and thorium sulphate have been summarized.[2] Only positive and striking results would justify one in adding to this formidable list.

In connection with the campaign for the eradication and control of hookworm infection in Siam, dysentery was at the beginning considered as contra-indicating the administration of the anthelmintics used. As the improvement in the health of those taking the treatment became evident, however, persons suffering from dysentery as well as from various other conditions began to apply for examination. In spite of instructions to the contrary, a number of the dysentery patients were treated by the assistants and were clinically cured of their disease. Impressed by these favorable results, we decided to investigate the types of dysentery thus responding to treatment, one of us following cases in connection with the hookworm campaign, and the other the cases treated at the Chiengmai Hospital. Attempts were made to follow the cases after treatment, and to secure specimens of stool for repeated examinations. This proved impossible in most instances, but in the cases reported in these pages, confirmatory examinations were made.

The patients in the cases reported were ambulant, but suffering from dysenteric stools, with the exceptions already noted. No cases of fulminating amebiasis were treated by this method. When the microscope showed the presence of amebas, it was considered a safe criterion to diagnose as pathogenic those amebas that had ingested erythrocytes. No cases were diagnosed on the presence of cysts alone until those cysts had been activated by a saline cathartic, and the phagocytosis of erythrocytes observed in the amebas.

METHOD OF TREATMENT

The treatment to adults was administered in several ways. Some patients were given a preliminary dose of one-half ounce of magnesium sulphate, followed in two hours by 1 c.c. of the oil of chenopodium in capsule. One hour later, a second dose of 1 c.c. of oil of chenopodium was administered, followed within an hour by 1½ ounces of castor oil. In more severe cases, the preliminary saline was omitted, and 2 c.c. of the oil of chenopodium were administered in 1½ ounces of castor oil at a single dose. In other cases the oil of chenopodium emulsified with gum acacia was administered by rectum. In such cases the anal mucosa must be protected with petrolatum, and it is well to terminate the injection with 2 ounces of an inert oil. The buttocks should be elevated, the enema given slowly and with great care, the first dose not exceeding 8 ounces in the adult. This enema should be retained for an hour, if possible. If the parts are well protected with petrolatum, the patient does not suffer from the intense burning sensations which would otherwise accompany the expulsion of the enema. In practically every case, after treatment by one of the foregoing methods, there was marked improvement in the condition, as blood and mucus disappeared from the stools on the second day after treatment. In a few cases, as will be noted in the case reports, this improvement was not evident or was only temporary.

After reading Walker and Emrich's[3] article on the effect of oil of chenopodium on amebic cysts, we administered the treatment to two patients in whom cysts were found, with the results indicated in the case reports. In one of these cases, chloroform was included in the treatment as recommended by Walker and Emrich, but on account of some unfavorable symptoms, we have not used it in other cases.

REPORT OF CASES

CASE 1.—A man, aged 25, had suffered from dysenteric stools for the six months previous to consultation. The stools were bloody and contained active amebas, with ingested erythrocytes, and ova of hookworm and *Trichuris trichiura*. He was treated with 1 ounce of magnesium sulphate at 7:30 a. m., with oil of chenopodium, 1 c.c., in emulsion with gum acacia, at 9:30 and again at 10:30, and with castor oil, 1 ounce, at 11:30 a. m. Blood disappeared from the stools on the second day, and the dysenteric symptoms subsided immediately. On reexamination twenty-nine days later, no amebas or cysts were found. The patient has been able to work and has had no dysentery since taking the treatment.

CASE 2.—A man, aged 57, had been having dysentery with bloody stools for three months. Examination of the stools showed hookworm ova and active amebas, with ingested erythrocytes. The same treatment was administered as in Case 1. The stools were formed on the second day with no trace of blood. They were reexamined twenty-seven days later, when they were formed, and appeared normal. No amebas or cysts were found. The patent is in good health, able to work, and has had no attacks since taking the treatment.

* The studies and observations contributed to this paper by Dr. Barnes were conducted with the support and under the auspices of the International Health Board of the Rockefeller Foundation.

1. Johnson, H. H., and Murphy, J. A.: The Toxic Effect of Emetine Hydrochlorid, Mil. Surgeon, 1917, 40, 58-70. Kilgore, A. R.: Peripheral Neuritis Following Emetin Treatment of Amebic Dysentery, China Med. Jour., 1917, 31.
2. Tropical Diseases Bulletin, Index Number, January to June, 1917, 9.
3. Walker, E. L., and Emrich, William: The Treatment of Carriers of Endameba Histolytica with Oil of Chenopodium, THE JOURNAL A. M. A., May 19, 1917, pp. 1456-1457.

CASE 3.—A man, aged 24, had had from six to ten bloody stools daily for two months previous to consultation. Examination revealed active amebas, with ingested erythrocytes, and the ova of *Opisthorchis viverrini* Poirier. The patient was treated as in the foregoing. The next day the blood had disappeared from the stools, which became normal in number and appearance. Reexamination six days later revealed normal stools, no blood, no amebas and no cysts. Two weeks later, he stated that he was well and working. He has had one formed stool daily, since taking the treatment.

CASE 4.—A woman, aged 54, for the previous twelve months had been having from four to six stools daily, with blood in practically every stool. Examination revealed very active amebas, with ingested erythrocytes, and ova of *Opisthorchis viverrini*. The patient was treated as in the foregoing cases. The blood disappeared the next day. Seven days later, reexamination revealed a normal stool, with no amebas or cysts. She has had normal bowel movements since the treatment.

CASE 5.—A man, aged 21, for the previous two weeks had been having from eight to ten stools daily with blood and mucus. Examination revealed active amebas, with ingested erythrocytes. Treatment was administered as in the foregoing, except that the second dose of chenopodium was given in the castor oil. All symptoms subsided within two days. Eighteen days later, examination revealed normal stools, no amebas and no cysts. The patient has been having one formed stool daily since the treatment, and is working.

CASES RECURRENT AFTER EMETIN TREATMENT

CASE 6.—A man, aged 40, had had severe dysentery for ten years, with recovery. He had been free from attacks from that time until one year previous to consultation, when dysenteric stools had begun. Three months later, he had been given emetin treatment, receiving a total of ten injections. He did not know the amount given. He had continued to have from four to six stools daily with mucus and often blood, up to the present time. He was unable to work. He complained of pain in the lower abdomen on defecation. He had some pain in the lower abdomen practically all the time, but no pain over the hepatic region, and no palpable tumor or other evidence of hepatic involvement.

He was treated as described in the foregoing cases. Two days later the stool was formed, but contained a trace of blood. Five days later the stools were found formed, with still a slight trace of blood. No amebas were found on either examination, but a few atypical cysts were present, which might have been amebic. Several attempts were made to follow up this case, but without success. Repeated inquiries from his friends elicited the information that two months after treatment he was still free from dysenteric symptoms, and was working.

CASE 7.—A soldier, aged 25, had been having from eight to ten stools daily with blood and mucus for three weeks, and had been confined to the hospital in the barracks. The army physicians had treated him with daily injections of emetin hydrochlorid and with enemas of tannic acid. A total of 7 grains of emetin had been administered, but the bloody stools continued, although their number had been reduced to two or three daily. Examination at this stage revealed amebas in both the active and the resting stage. Treatment was administered by rectum, 0.5 c.c. of oil of chenopodium being administered in emulsion with gum acacia. The enema was retained for an hour and a half. Three days later, the patient was examined and the stools were found normal, with no blood and no amebas. On the twenty-third day after treatment, the army physicians reported that he was still free from symptoms and was doing his military duties.

CASE 8.—A man, aged 44, first seen in February, 1916, gave a history of chronic dysentery lasting for nearly two years. He was treated with emetin, 7 grains per day, for six days, the treatment resulting in apparent cure. Active amebas with ingested erythrocytes were found in the stools before the treatment, but disappeared after the third injection. June 18 of the same year he returned with dysentery, and with amebas in the stools, and was relieved with emetin, a total of 6 grains being administered. Feb. 10, 1917, he again returned for treatment. Amebas were found and emetin was again administered, 1 grain daily for seven days. In September, when he returned with a recurrent attack, amebas were again found. This time he was treated with 2 c.c. of oil of chenopodium in the manner described, that is, with a preliminary saline, followed two hours later by oil of chenopodium in capsule (1 c.c.), an hour later by 1 c.c., and an hour later with castor oil, 1 ounce. The next day, he had only two stools, no blood being seen. On the second and fifth day after treatment, no amebas were found in the stools. The patient had had no recurrences up to the time when last seen, Jan. 3, 1918.

CASE 9.—A merchant, aged 26, stated that on three different occasions he had been treated with emetin for dysentery, receiving four or five injections each time. These attacks occurred at intervals of about six months. When seen in August, 1917, he was having from eight to ten stools daily with blood, mucus and much pain. He was given 2 c.c. of oil of chenopodium in 1 ounce castor oil at a single dose. The next day he was practically free from symptoms, and the amebas, which were abundant in the stool on the morning of treatment, had disappeared. He returned, Jan. 2, 1918, with a recurrence, amebas again being found. The same treatment resulted in the same rapid disappearance of dysenteric symptoms.

CASE 10.—A woman, aged 27, was treated for dysentery on three different occasions during the two years previous to consultation, amebas being found at the beginning of each attack. The treatment was with emetin, a total of 8 grains, 6 grains, and 7 grains, respectively, being given during the three attacks. Nov. 12, 1917, about six month after the attack, she had a return of dysentery, and amebas were again present. She was treated with 2 c.c. of oil of chenopodium in 1 ounce of castor oil with quick results as to disappearance both of symptoms and of amebas. The patient had continued free from attacks up to the time when last seen, Feb. 4, 1918.

CASE 11.—A man, aged 60, Chinese, had had repeated attacks of dysentery for two years. The attack for which he applied for treatment was of two months' duration. His condition was complicated by nephritis and asthma. He was given emetin, 1 grain per day for six days, with only a slight amelioration of symptoms, mucus and blood being still present. Active, phagocytic amebas were found five days after the last dose of emetin. He was then given an enema of oil of chenopodium by the method described, with slight improvement. Six days later, a second treatment was given by enema, followed by very marked improvement. Blood and amebas disappeared from the stools, and only a slight amount of mucus persisted. The patient left the hospital. Two months later, he was still free from dysenteric symptoms.

TREATMENT OF CYST CARRIERS

CASE 12.—A man, aged 30, had suffered from dysentery almost continually for five months, with short periods of freedom from symptoms. Whenever he started to work, the symptoms returned. Examination of a soft stool showed the presence of amebic cysts, and hookworm ova. The cysts were four nucleated with a chromidial body (hematoxylin stain), and conformed to the descriptions given by Walker and Sellards.[4] One ounce of magnesium sulphate was administered, and in the saline stool active phagocytic amebas were found. Treatment with oil of chenopodium was carried out, the second dose being given in castor oil. The patient has not returned. Five days after treatment, considering himself cured, he left to secure work in a railway construction gang. Inquiry was made eight weeks after treatment, and his family stated that he was well and working on the railway.

CASE 13.—A man, aged 35, European, had suffered several attacks of dysentery and had been treated with emetin. The dysentery was slow in yielding to treatment. He had had no acute attack for two years, but had had several subacute attacks. Examination revealed the presence of hookworm

4. Walker, E. L., and Sellards, A. W.: Experimental Entamoebic Dysentery, Phil. Jour. Sc., B, Trop. Med., 1913, 7, 253-331.

ova and amebic cysts of the four-nucleated type with a chromidial body (hematoxylin stain). After the administration of an ounce of magnesium sulphate, the saline stool contained active phagocytic amebas. Treatment was administered according to the method suggested by Walker and Emrich. A total of 3 c.c. of oil of chenopodium in hourly doses of 1 c.c. was followed by 1 ounce of castor oil containing 50 minims of chloroform. Eight days later, reexamination of the stools revealed no hookworm ova, no amebas and no cysts. On the ninth day, a saline stool was examined with similar negative results. Four and a half months after treatment this patient continued well, with no indication of any tendency to recurrence.

CASES FAILING TO RESPOND FAVORABLY

Case 14.—A man, aged 20, had had from three to six bloody stools daily for three years. Examination revealed the presence of the ova of hookworm, *Trichuris trichiura*, *Opisthorchis viverrini* and large numbers of the *Lamblia intestinalis* and active amebas with ingested erythrocytes. Treatment with oil of chenopodium was administered, a total of 2 c.c. being given, followed by 1 ounce of castor oil. All symptoms subsided within two days, with normal formed stools in which repeated examinations failed to show amebas or amebic cysts; but *Lamblia* cysts remained abundant, and a number of active *Lamblia* organisms were always present. This continued for three weeks, when dysenteric symptoms returned. Oil of chenopodium was administered by rectum as described, 1 c.c. being administered in 8 ounces of emulsion with gum acacia. This caused a subsidence of symptoms, which lasted for about ten days. The patient was then placed on emetin treatment, which resulted in much improvement; but the *Lamblia* infection remained unchecked, until he had received four high enemas of methylene blue, 4 grains to the pint of water. Dysenteric symptoms have been absent for four weeks up to Feb. 4, 1918.

Case 15.—A man, aged 41, had had dysenteric attacks for about a year, during which time he had been unable to do any work. He had been treated with emetin during one period, but did not know the amount given him. For several months he had had from six to ten stools daily with blood, mucus, and pain. Examination revealed the presence of ova of hookworm, *Trichuris trichiura*, *Opisthorchis viverrini*, oncospheres of *Taenia saginata*, an undetermined flagellate which was present in very large number, and active amebas with ingested erythrocytes. Two c.c. of oil of chenopodium were administered orally as described with marked improvement in symptoms, but with a recurrence within three weeks. The treatment was repeated with a similar initial improvement, followed by a recurrence within practically the same period. One c.c. was then administered by rectum in the manner described. This caused a very marked improvement, which, however, was followed by a recurrence within three weeks. The rectal treatment was repeated, with similar results. The patient was then put on emetin treatment and the amebic infection cleared up readily. The flagellate infection remained heavy, however, and it remains to be seen whether it may lead to a recurrence. Five weeks after the last treatment with emetin, he was free from symptoms.

Case 16.—A man, aged 34, was admitted to the hospital with a history of chronic dysentery lasting eight or nine months. Amebas with ingested erythrocytes were found in the stools. The patient was given 2 c.c. of oil of chenopodium in 1 ounce of castor oil. The next day, stools were more frequent, and defecation was painful. On examination, large numbers of actively motile amebas were found, and large numbers of *Lamblia intestinalis*. The patient was then put on emetin treatment, and the amebas disappeared; but diarrhea with pain, and sometimes mucus, persisted. Enemas containing oil of chenopodium were tried, with temporary amelioration. High enemas of methylene blue, 4 grains to the pint, and quinin, 5 grains to the pint, were given for nine successive days, and the patient was discharged as cured. Both *Lamblia* organisms and amebas had disappeared from the stools, and all symptoms had subsided.

COMMENT

From these cases, as well as from others which could not be followed as carefully, it is evident that the oil of chenopodium possesses marked power as an amebicide, and while some patients do not respond to it, many others are clinically cured by its administration. Cases complicated with a flagellate infection seem especially resistant to treatment. It is recognized that the absence of cysts from the stools is no proof that the patient has been permanently cured; but any drug that will cause such marked clinical improvement in dysentery patients as does the oil of chenopodium well merits further investigation. With emetin so difficult to obtain as it now is in oriental countries, oil of chenopodium may be used with great satisfaction in a large proportion of cases, emetin being reserved for the most severe types. For ambulant cases, oil of chenopodium is very convenient. It can be sent to a patient combined with castor oil, so that its administration requires no specially trained assistant, as would emetin, under the circumstances. So marked has been the improvement in the condition of the majority of the patients treated thus far, that as a routine measure all ambulant patients applying at the dispensary are treated as indicated, emetin being reserved for those patients who fail to respond promptly, or who show a tendency to relapse. A point to be remembered is that, on account of its irritating effects on the kidneys, oil of chenopodium should not be repeated in full doses at intervals of less than two or three weeks.

CONCLUSIONS

1. Oil of chenopodium relieves promptly the clinical symptoms in many patients with chronic and subacute amebic dysentery.

2. Oil of chenopodium administered by mouth or by rectum possesses marked power as an amebicide, as is shown by the rapid disappearance of amebas from the stools, following its administration.

3. There is a tendency to relapse in some cases, but in our series this is not greater than with the use of emetin.

4. The oil of chenopodium may be safely administered, when combined with castor oil in a single dose.

Health Abstracts for Houses.—The *Journal de Médecine de Bordeaux* remarks that it is impossible to go to the bottom in any matter interesting the public health without bumping against the obstacle of professional secrecy. The profession has been relieved of the obligation of professional secrecy in so far as epidemic diseases like cholera and diphtheria are concerned, but for all others professional secrecy must be kept inviolate. However, the municipal authorities already have in their possession data sufficient to establish the bill of health for each residence in the city. (The writer is referring to France of course.) The building permits the fumigation service, the sewerage system, the édilité system (official oversight of buildings, roads, weights, etc.) and the public health service—these various municipal departments have accumulations of data in regard to many if not all dwellings, and if they could be correlated and classified they would supply the health record of each dwelling involved. The editorial queries whether this task might not be undertaken so that any one wishing to know the health history of his dwelling could find it on consulting the public records. The owner might refuse to show the health abstract to the purchaser, but this the editorial seems to regard as immaterial. The whole question is merely to educate the public, to create a habit, to insure that the health history of the dwelling should be demanded of the owner before a purchase or before renting the dwelling.

RADICULITIS: ITS DIAGNOSIS AND INTERPRETATION *

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Radiculitis, the *syndrome radiculaire* of Dejerine[1] is an acute inflammation of the spinal nerve roots. We mean by a radicular syndrome, alterations of sensation or of muscle power which show that the primary disease-process producing them is in the spinal roots and not in the tracts and nuclei of the spinal cord. Likewise, we must distinguish such an innervation from a peripheral one. We know that every posterior root innervates a particular skin zone, its fibers reaching this area through several peripheral nerve trunks. Radicular areas are, therefore, very different from peripheral areas of innervation.

According to some, radiculitis should be used only in connection with disease of the sensory nerve roots. Such a limited pathologic picture is, however, rarely met with and the radicular syndrome generally includes an involvement of the anterior as well as of the posterior nerve roots. Wertheim - Salomonson[2] believes that radiculitis should refer only to neuritis of the spinal roots (both sensory and motor), and that neuralgia of a radicular innervation should not be grouped under this name. I agree with many French authors[3] that we cannot always distinguish between a neuralgia and a neuritis of the spinal roots, and radiculitis when used should refer to both of these.

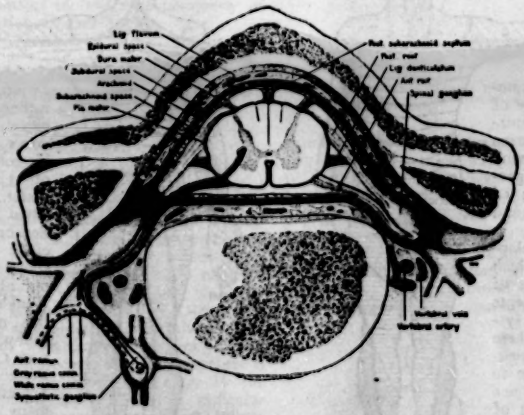

Fig. 1.—Cross section through the fourth cervical vertebra showing the meningeal sheaths, and the connections with the sympathetic nervous system modified from Rauber-Kopsch and Edinger.

Radiculitis is more frequent in the lumbosacral than in the cervical or thoracic roots, because here the roots are longer and more perpendicular and having fewer anastomoses, their involvement is more easily distinguished from neuritis of the nerve trunks. In the upper cervical region, for instance, the distance from an intervertebral foramen to the spinal ganglion is only 10 mm., but it increases the farther one goes along the cord, until in the first sacral root, this distance is 188 mm. In the cervical region, sensory (and also motor) root symptoms invariably involve several adjacent roots and the motor root symptoms overshadow those of the sensory roots. A radiculitis of the cervical region, therefore, frequently resembles superficially an Aran-Duchenne syndrome, and a lumbosacral radiculitis is generally thought to be sciatic neuralgia.

A perineuritis localized in the roots of the spinal nerves may be due to many kinds of infection and toxins. Radiculitis is, however, generally syphilitic in origin, occasionally tubercular, and, therefore, a radicular syndrome is often found accompanying both syphilis and tuberculosis of the vertebrae. It may result from stretching or pressure in all forms of arthritis and spondylitis, and in subluxations and fractures of the spine. These various mechanical origins of a radiculitis will not be dealt with in this paper. Our purpose is rather to establish its occurrence as a primary disease or accompanying a meningitis and, secondarily, to discuss wherein a radiculitis differs from symptoms of spinal cord disease.

What is the radicular nerve? It begins where the roots pierce the dura mater and terminates at the place where the posterior root fibers reach the superior pole of the ganglion. The two roots are separated from each other throughout this course by a dural sheath and do not unite. A meningeal sheath accompanies it and invaginates it like a funnel and ends (especially the pia) by fusing with the neurilemma. The subarachnoid space is continued on the roots as far as the superior ganglionic pole. The entire surface is, therefore, bathed by cerebrospinal fluid. Cestan and Sicard[4] have also called attention to the fact that the arachnoidal sheath descends farther along the posterior root than along the anterior root, so that an accumulation of endotoxins in this culdesac may occur and bring on a perineuritis. Sicard speaks of the part of the root between the ganglion and the conjunction of the two roots to form the nerve trunk as the funicular nerve, and disease of it as a funiculitis. This is the rachidian nerve of Dejerine. This portion has an extrameningeal course, is extremely short and is really a part of the nerve trunk (Fig. 1).

The neuralgia which generally ushers in a radiculitis gives rise to such severe pain, sharp and lancinating in character, that no attention is paid at first to any other diagnosis than the general one of neuralgia or neuritis. This may be an error of a twofold type. It may close the physician's eyes to a primary radicular or spinal disease originating with this symptom, or it may prevent him from recognizing that he is not dealing with disease of the nervous system at all.

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Dejerine, J.: Sémiologie des affections du système nerveux, Paris, 1914, 3, 237.

2. Wertheim-Salomonson, in Lewandowsky's Handbuch, 2, Part 1, 134.

3. Camus: Etude de neuropathologie sur les radiculites, Thèse de Paris, 1908.

4. Cestan and Sicard, cited by Lortat-Jacob and Sabareanu: Les sciatiques, Ed. 2, Paris, 1913.

Patrick recently called attention to the frequency of neuritis and neuralgia of the arms and legs and established the presence of arthritis in a large percentage of patients referred to him with these diagnoses. But we must not err on the other side and believe that osseous and joint diseases are the only origin of nerve pains, as do some orthopedists.

1. *Radicular Sensory Alterations.*—The pain of radiculitis in the early part of the disease may be unaccompanied by any objective loss of sensation. The usual finding is a decrease of tactile sensation which progressively increases in degree, always radicular, however, in innervation and, therefore, not altering in extent except when other nerve roots become affected, as for instance, in Kahler's type of syphilitic multiple root-neuritis.

Peripheral types of altered sensation, unlike the radicular, as a rule, change in outline on different examinations. The true type of radicular sensory disturbance is the bandlike areas invaded, around the trunk in zones, or in striae parallel to the long axis of the limbs in the arms and legs. This topography is explainable by the development of the embryo, which is made up of a series of metameres. The segments of the central nervous system corresponding to these metameres are called neuromeres. If we refer to sensory innervation, we speak of dermatomes; of muscular innervation, myotomes. These two are dissimilar, that is, a sensory root area of the skin does not correspond to the same motor root zone.

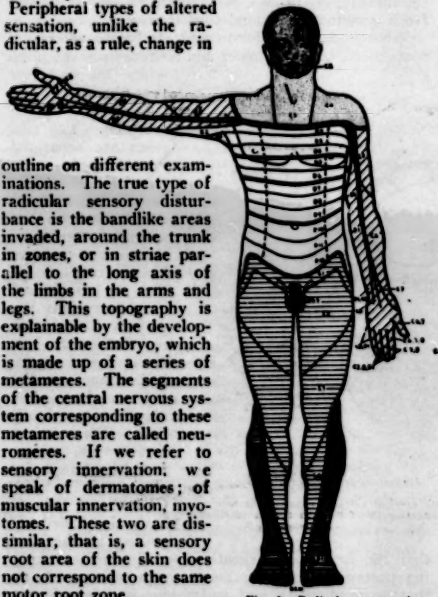

Fig. 2.—Radicular sensory innervation. Heavy lines indicate direction or axial lines. Modified from Dejerine and Flatau.

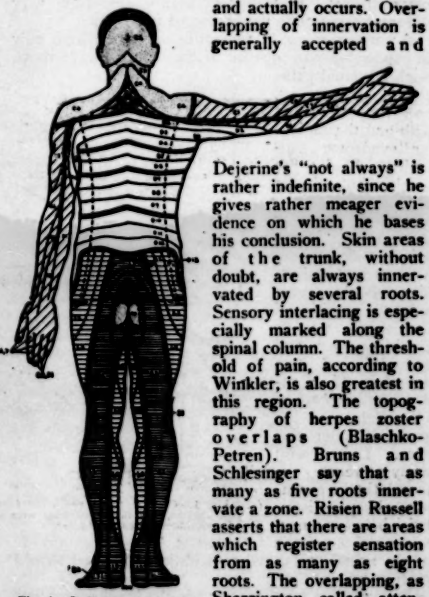

Fig. 3.—Radicular sensory innervation. Heavy lines indicate direction or axial lines. Modified from Dejerine and Flatau.

In radiculitis, the affected sensory areas are usually only hypesthetic. Anesthesia occurs only whenever the root fibers are completely destroyed and, as a rule, then only if two or more roots are involved. A radicular type of anesthesia occurs at the height of a cord lesion, but we find a segment of hyperesthesia above it and below it, a sensory dissociation of a syringomyelic type or a Brown-Séquard type of paralysis. I am referring, of course, especially to unilateral and partial lesions. Total myelitic lesions have a symptomatology which never leaves anyone in doubt. These types of dissociation do not occur in radiculitis. The German writers use interchangeably a radicular and a medullary innervation. I do not believe because of the foregoing that the two terms should be used indiscriminately.

A radicular type of altered sensation by itself is not distinctive. It is common to many disease processes and is not peculiar to a radiculitis. It may be part of the picture of locomotor ataxia, hematomyelia, pachymeningitis, and of various diseases of the spinal cord and roots due to pressure and crush. It may be the opening scene of an extradural tumor. A meningeal pocket distended with cerebrospinal fluid may cause localized pressure and evoke a radiculitis.

Dejerine[5] asserts that involvement of one posterior root is sufficient to bring out sensory changes. His observations, he says, have brought him to the conclusion that Sherrington's studies on the monkey, relating to innervation of the skin from three adjacent roots, do not always hold true in man. A monoradiculitis is possible and actually occurs. Overlapping of innervation is generally accepted and Dejerine's "not always" is rather indefinite, since he gives rather meager evidence on which he bases his conclusion. Skin areas of the trunk, without doubt, are always innervated by several roots. Sensory interlacing is especially marked along the spinal column. The threshold of pain, according to Winkler, is also greatest in this region. The topography of herpes zoster overlaps (Blaschko-Petren). Bruns and Schlesinger say that as many as five roots innervate a zone. Risien Russell asserts that there are areas which register sensation from as many as eight roots. The overlapping, as Sherrington called attention to, is more pronounced on the hands and feet than on the trunk. According to Head, there is a sharp limitation of the root areas for pain and temperature sensation. He seems to agree with Dejerine as far as these sensations are concerned. Seiffer notes that above the axillary line of the upper limbs (the proximal side) there is no overlapping. Sherrington, Muskens and Mackenzie agree that the overlapping pain is less than for touch. The zonal areas of innervation on the legs and arms are grouped together into axial or direction lines. These refer to the places on the skin which perhaps innervated from root areas widely apart in the spinal cord, yet adjoin on the skin (Figs. 2, 3 and 4). On the arm, for instance, above the axilla, the second dorsal area is next to the

5. Dejerine, J.: Séméiologie des affections du système nerveux, Paris, 1914, p. 621.

fourth and fifth cervical zones of innervation. On the leg, the second sacral root zone adjoins the third lumbar root area. Along these axial lines the interlacing of sensation and resultant overlapping is especially noticeable.

2. *The Sign of Coughing and Sneezing.*—This is the *signe de l'éternuement et de la toux* of Dejerine. The acts of coughing, sneezing and straining at stool produce severe pains radiating along the limbs. Oppenheim adds that in cervical radiculitis sudden movements of the head will produce severe pain. Though I have found it a useful sign in aiding in the interpretation of root and root-zone disease, it is not diagnostic, for its presence will not rule out other disease types. It is about in the same category as the many signs of sciatic involvement: Valleix's points, Bonnet's, Minor's and Neri's signs, Lasègue's phenomenon, etc., helpful if found, often absent, rarely diagnostic.

Fig. 4.—Radicular sensory innervation. Heavy lines indicate direction of axial lines. Modified from Dejerine and Flatau.

3. *Herpes.*—A herpetic eruption along the innervation of the posterior spinal roots, when present, practically eliminates in itself the possibility of a peripheral neuritis.

4. *Abolition of the Reflexes.*—In a complete radiculitis, all deep and superficial reflexes are abolished in the region innervated by the diseased roots. In the early stages, along with the irradiating pains, we may find increased reflex activity.

5. *Serologic Findings.*—Cerebrospinal fluid examination revealing a lymphocytosis and the presence of globulin is confirmatory of the diagnosis. The Wassermann reaction is also frequently positive inasmuch as syphilis is the most common etiologic factor.

6. *Unilaterality of Symptoms.*—A pure radiculitis is almost always one-sided. Bilateral involvement is rare. When it occurs, a meningomyelitis is probably commencing, even if the symptoms indicate only a radicular type of disease. An extramedullary tumor, as a rule, in the beginning, unilateral in symptomatology, must be always thought of.

7. *Muscular Atrophy.*—Involvement of the motor roots is not a necessary part of the picture of a radiculitis. However, in the cervical region, concomitant sensory and motor root involvement is the rule. In this region, also, a sharp distinction between root and plexus disease is not always possible, although an exact differential diagnosis has been attempted.[6] I cannot agree, however, with Oppenheim that because the same causal lesion generally affects both roots and plexus, it is not important to attempt a differentiation.

In radicular disease, since most muscles are supplied by two or three roots, a partial paralysis of a muscle is frequently noted. Flatau gives an unisegmental innervation to a few muscles, such as the tensor fasciae latae and the subclavius. Most muscles, however, contain elements from various roots resulting from the growing together of several myotomes.[7]

6. Warrington-Jones: Lancet, London, 1906.
7. Edinger: Bau der nervösen Zentralorgane, Ed. 8, 1911, 1, 114.

8 *Muscle Spasms.*—Abdominal muscle spasms due to irritation of the anterior roots with associated involvement of the sympathetic fibers frequently accompany radiculitis of the thoracic roots and occasionally of the lumbosacral roots (radiculitis meningopathique of Chipault). Abdominal angina as a result of arteriosclerosis must be excluded. I recently saw this type of abdominal pain and spasm in a patient of Dr. Lurting's, who was suspected of having posterior cord or root disease.

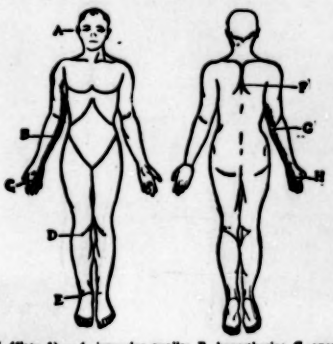

Fig. 5 (Case 1).—*A*, irregular pupils; *B*, hypesthesia; *C*, anesthesia; *D*, patellar clonus; *E*, ankle clonus; *F*, origin of radiating pain; *G*, hypesthesia; *H*, anesthesia.

9. *Sensory Dissociation in Radiculitis.*—The band-like or longitudinally striated alterations of sensation are generally not equal for all modalities of sensation. A loss of tactile sensation associated with the conservation or an exaggeration of the pain sense is the usual type (*anesthésie douloureuse*). Of course, this is not distinctive or diagnostic, because it is noted also in peripheral nerve injuries. The causalgia of Weir Mitchell is a well known example of this. Deep sensibility is generally conserved. The true type of radicular sensory dissociation, according to Dejerine, is found in tabes. He has named it the "sensory radicular syndrome." Here the loss of tactile sensi-

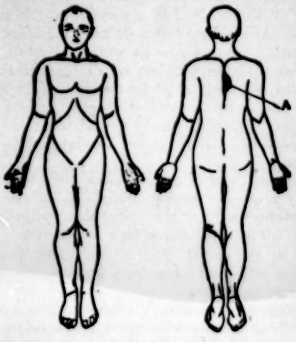

Fig. 6 (Case 2).—Biceps, triceps, pronators and flexors of hand and thenar, hypothenar and interossei involved; *A*, onset of pain.

bility coexisting with loss of deep sensibility, particularly of the sense of position, is much more pronounced than are alterations of the pain or of the thermic sense. It is an inverse type to the dissociation of syringomyelia. If Dejerine meant that it was

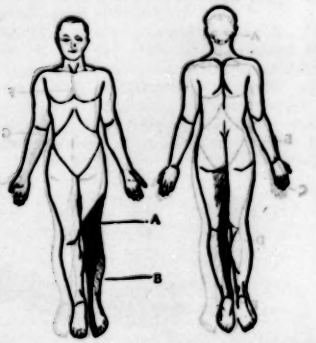

Fig. 7 (Case 3).—*A*, pronounced hypesthesia; *B*, slight hypesthesia.

peculiar to tabes, I cannot agree. I have noticed this dissociation in cord disease from pernicious anemia, for instance. Loss of deep sensation (particularly the muscle sense) does not occur without involvement of the posterior cord, and, therefore, we are no longer considering a pure radiculitis. A progressive marginal sclerotic meningomyelitis may bring on this type of sensory change. This should be the diagnosis, therefore, whenever radicular symptoms only are found, if a sensory loss of the position sense and of the muscle sense are present. The presence of striated anesthetic zones accompanied by such a sensory dissociation should lead to a careful search for slight muscle weakness, hypotonus or mild transient or continuous spasticity. One can well understand in this connection that the problem of disease of the fibers making up the roots must be thought of in reference to their implication, before they have entered the spinal gray matter, at the height of their termination in the posterior horn or in the intermediate zone (Dejerine).

The entire domain of proprioceptive reflexes and stimulation of the sensory pathways by the various organs of the body is also a problem which must be referred to in this connection. The finer sensory qualities of which we know so little and which regulate muscle and visceral activity are frequently altered in a radicular disease.

No sensation is a simple reaction, but depends on the judgment of the individual concerning complex neural processes. The threshold of sense perception varies so greatly that no word symbols can express individual distinctions. We must be content, therefore, with general words to express our interpretations, inasmuch as the clinician cannot interpret "pain or any sensation in reference to the problems of adaptation, contrast or liminal intensity." The "prefixed" and "postfixed" types of some writers refer to individual variations in the innervation of dermatomes.

We often find difficulty, therefore, in solving our clinical problems. In transverse lesions, for instance, of the cord, the retained sensation in certain root zones (first and second sacral) is very confusing. Head's explanation is that the sensory fibers group themselves in the lateral cords after their crossing and take a cortical course in the gray matter. The lateral cords are more resistant to compression and these fibers, therefore, escape injury. We may have, also, a lesion of the posterior cord without involvement of the corresponding posterior nerve roots. The symptoms of this Dejerine grouped under the name of the "syndrome of the long radicular fibers of the posterior cord." Intact tactile, pain and temperature sensations are present, or but slightly impaired, accompanied by a loss of the sense of position, of pain to pressure and of the vibratory sense (bone conduction). There is, likewise, a loss of the sense of tactile discrimination and of localization. This results in astereognosis.

In differentiating medullary from radicular involvement, it is necessary to remember the differences in innervation of roots and segments. The roots of the spinal cord, as before stated, especially in the lumbosacral region, take a long perpendicular course before forming a mixed nerve. Topographic differences in innervation occur. Most motor roots arise so near to their nuclei in the spinal cord that, for practical purposes, radicular and medullary segmentation may be considered to be the same. I have previously in this paper objected to their interchangeable use in reference to sensory innervation. The threefold course of the sensory fibers in the spinal cord, the bilaterality of those for pain and temperature, the unilateral course of the ordinary tactile fibers and the variations between long and short sensory fibers are reasons sufficient for this objection.

Clinical practice conforms to this. We guess at the height of a cord lesion. After establishing the anes-

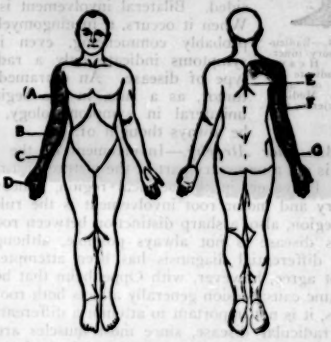

Fig. 8 (Case 4).—*A*, hypesthesia; *B*, lost sensation; *C*, dysbasia; *D*, hypotonus and spasms; *E*, onset of pain; *F*, radiating pain and hypesthesia; *G*, lost sensation.

thetic root areas and the overlying zone of hyperesthesia, we figure that the lesion is one segment higher. In fact, it is the general procedure to assume a lesion two segments higher.

Zona, herpes zoster, acute posterior poliomyelitis and acute posterior ganglionitis are various names

given to disease of the posterior ganglions. The sensory symptoms are radicular in type. Its infectious origin has been established. Occasionally the inflammation invades the anterior roots, giving rise to muscle weakness and wasting. In addition to the herpes, radicular pains and a radicular decrease of sensation is usually found. Degenerated fibers have been traced into the spinal cord. The sympathetic ganglions with their *communicantes* to the sensory ganglions, as well as the entire problem of the trophic and vasomotor functions of the posterior roots, are not well understood and their discussion would take us far afield. We shall merely mention the well-known oculopupillary phenomenon and the pilomotor reactions. We may consider, also, that the work of Ross, Mackenzie and Head has established that the viscera receive their sensory fibers from the same area from which arise the sensory roots along which the pain is referred.

The following four cases will illustrate the types coming under the diagnosis of radiculitis:

CASE 1.—E. S., aged 24, was attacked six months ago with shooting pains radiating from the back down the arm. There was motor weakness and wasting in regions innervated by the eighth cervical and first dorsal anterior roots, and possibly the seventh cervical. There was anesthesia to all sensations on the ulnar side of the hand and hypesthesia along the ulnar side of the arm. Tenderness was noted along the paraspinal line, from the fifth cervical to the first dorsal vertebra. Irregular pupils and increased reflexes were found, with ankle clouus. Pallor of the outer lower quadrant of the right optic disk was noted. The Wassermann reaction was positive, with forty-five cells on examination of the cerebrospinal fluid. The diagnosis was cerebrospinal syphilis, with radiculitis as a prominent syndrome. Three intravenous arsphenamin injections and daily mercurial inunctions were given for three months. The result was a negative spinal fluid and blood. Atrophy disappeared and muscle power returned. The clonus disappeared, but the increased reflex activity persisted. No change in sensory symptoms accompanied the muscular recovery, but later sensation became restored. The patient had an attack of herpes over the eighth cervical zone, a year before her present attack.

Fig. 9.—M. C. (Case 4), two months after exploratory operation. Areas of pain on touch painted with iodin. Notice herpes over fourth, fifth and sixth cervicals.

CASE 2.—L. S. had a sudden onset, with pain between the shoulders, later radiating down the right arm. All movements started sharp, shooting pains in both arms, but especially in the right. The patient became faint from pain and was removed to the hospital. An interesting question was raised concerning his right to compensation under the laws of Pennsylvania. He claimed the heat (he was a billet maker) caused this illness. Paralysis set in after several days, with wasting in the areas of the fifth, sixth, seventh and eighth cervical roots. There was no objective alteration of sensibility. The Wassermann reaction was positive.

CASE 3.—S. T. was suddenly attacked with pain in the left knee, ankle and in lower spine. He believes he slipped on the ice and sprained himself. The roentgenograms and laboratory reports were negative. There was no scoliosis. Hypesthesia to the touch was present over the area of the lower lumbar roots. There was no disturbance of heat and cold, muscle or pressure sense. Some lessened sensation occurred over the upper sacral innervation. There was a sluggish patellar reflex. There was weakness and wasting of the thigh muscles supplied by the anterior crural nerve. There was weakened action of the tibialis anticus, flexion of foot being barely possible. Muscle power slowly returned.

CASE 4.—M. C. had a sudden onset, with pain between the shoulders, followed by sharp pains in the right arm and especially in the middle finger and dorsum of the hand. The arm was useless because of pain. Coughing and sneezing brought on pain. Exaggerated biceps and triceps reflexes were noted. There was weakness of the muscles innervated by the fifth, sixth and seventh cervical roots. Dysbasia was more prominent than any paralytic phenomena. There was a drawing pain in the back at the level of the first dorsal vertebra. There was a blunting of sensation to touch and temperature along the inner part of the hand, forearm and upper arm. An exploratory operation was performed (Dr. O. C. Gaub). The arachnoid membrane was cobwebby. The blood vessels were slightly congested. All the roots and spinal cord looked normal (lower cervical cord operation). Improvement followed the operation. Three months later, hyperesthesia of the eighth cervical and the first dorsal areas was noted and herpes of the fourth, fifth and sixth cervical areas.

ABSTRACT OF DISCUSSION

DR. WILLIAM A. JONES, Minneapolis: As illustrative of this subject, I would like to cite the case of a man in middle life who for sixteen years had a paroxysmal and recurrent pain in his right arm. He had no sensory loss of any kind. We decided that the only thing to do was to resect some of his posterior nerve roots. The location was carefully worked out and three roots were shaved off from the surface of the cord. He awoke from his anesthesia with a paroxysm of pain in exactly the same locality and without a shadow of disturbance in any of his sensory areas. He suffered for another year and then was operated on by another surgeon, who removed a root above and a root below the point at which we had operated. That relieved his pain, but incapacitated him muscularly as well as sensorially.

DR. G. A. MOLEEN, Denver: While at the National Hospital for the Paralyzed and Epileptic, in England, I studied a case with Sir Victor Horsley had resected every other posterior root from the third to the ninth dorsal in a case of spastic paralysis without any sensory disturbance following. About a year ago Dr. Leonard Freeman of Denver, for the purpose of relieving a lumbosacral pain, resected the last three dorsal and the first three lumbar roots, as I recall, without sensory disturbance. In a case of gastric crisis in a tabetic I resected the posterior roots from the fifth to the eleventh dorsal, about a year and a half ago, and there was no loss of tactile sensibility following the operation, although affording prompt relief from the pain. Every single root was carefully resected subdurally. It would seem that we are wanting in an explanation for the absence of sensory disturbances following these resections, and I feel that this has a bearing on the subject presented. I would like to have Dr. Mayer's explanation, in view of the statement that the sensory functions of the posterior roots are pretty well defined, as I understood it to have been expressed.

DR. JOSEPH BYRNE, New York: The absence of sensory changes is to me rather inexplicable. For eight years I have

been doing research work on the sensory system with a view to determine the mechanisms involved in pain, and it was difficult work. On the psychologic side it is impossible to have pain without alterations in the sensory apparatus and consequently in sensation. On the purely physiologic side my own studies have convinced me that, if careful quantitative tests are made, it will be found that there are changes in one or other of the sensory domains.

Dr. Edward E. Mayer, Pittsburgh: I intended at first to limit my paper to radiculitis of the lumbosacral cord, because our orthopedic friends have been lately stressing their point of view of low-back pains. Many forget that the spinal roots are really a part of the spinal cord, inasmuch as they are bathed by cerebrospinal fluid and have the same meningeal coverings and are, therefore, subject to similar diseases. Dr. Jones and Dr. Moleen both are well aware that I cannot answer their questions. This much is true, however, (1) that sensory innervations are more complex than motor ones, because the former deal with more complicated proprioceptors; (2) that sensory findings are only quasiobjective, though we accept our patients' registrations as being always actual, and therefore objective. Again, with cord disease, we have fairly precise level diagnoses, but here also it is largely the motor symptoms and the reflex changes which give us our segmental localization. Lost sensation, of course, is definite. But pain is not. In the patients cited by Drs. Jones and Moleen, I imagine, secondary involvement of sympathetic ganglions occurred.

This often produces pain of an unlocalizable character. The variations in the course of the different sensory fibers and the connections of the gray and white rami of the sympathetic are apt to produce confusion. We have not yet worked out certain obscure types of reflex disturbances. Oppenheim and Tournay have recently written about sensory changes of this character in reference to a syndrome radiculo-sympathique reflex, and Sicard describes an acromyotonia, which is worthy of consideration in this connection. Both of these writers were inspired by Babinski's recent work on physiopathic phenomena. I would like to talk of this, but it would require more time than I am permitted to take.

CHILDREN IN THE WAR ZONE*

J. P. SEDGWICK, M.D.
AND
N. O. PEARCE, M.D.
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MINNEAPOLIS

One of the most important and interesting phases of the American Red Cross Work in France is the care of refugee children in the war zone. This work is carried out under the auspices of the children's bureau, which was organized in July of last year. The first work of this character undertaken was the establishment of an asylum and hospital for children at Toul, in the Meurthe and Moselle Department. This medical and relief work, with the help of the French civilian and military authorities, has been developed along such extensive lines that today the children's bureau, through this institution and traveling dispensaries, is able to bring help to the entire child population of the department, the fighting front of which, as all know, is the original sector taken over by the American expeditionary forces.

The need of this work can be better appreciated when it is recalled that in this whole district, where thousands of children are living under violently upset conditions, there were only fifteen hospital beds available for children, and these only for emergency operative cases. There were but a few physicians available for civilian service, and these only because they had reached an age at which they were unable to endure army service.

When we undertook the organization of medical relief work in this department, there were about 200 little refugees at the Asile Caserne du Luxembourg at Toul. They had arrived a short time before from the partially destroyed villages directly behind the lines just north of Toul. It had been necessary to evacuate them quickly from these towns because of German gas attacks. These children had been living since the beginning of the war under almost daily bombardment among the ruins of their former homes. To exist at all under such conditions entailed many hardships and much neglect. Many had slept during this entire period in cellars where sanitation and hygienic conditions were of the poorest, as many as twenty-five to thirty women and children occupying the same room without ventilation or sunlight. Naturally food conditions were bad, and the children lived largely on coarse war bread, garden vegetables and chocolate, there being not so much a lack of food as improper preparation, owing to the fact that the mothers and older daughters were engaged every hour of the day in war or agricultural work.

TABLE 1.—HISTORY OF ONE HUNDRED FRENCH REFUGEE CHILDREN*

	Per Cent.
Fathers in army	93
Killed in battle	13
Prisoners of war	5
Mothers living	96
Natural delivery	95
Breast-fed 3 months	13
6 months	9
9 months	8
12 months	23
15 months	27
18 months	4
20 months	8
24 months	9

* The average number of children in a family was 4.

TABLE 2.—HEIGHT AND HEAD CIRCUMFERENCE OF TWO HUNDRED FRENCH REFUGEE CHILDREN,* COMPARED WITH AMERICAN STANDARDS OF HOLT

Age, in Years	Height		Head Circumference	
	American, cm.	French, cm.	American, cm.	French, cm.
1	73.50	69.80	45.20	46.18
2	82.80	75.12	47.70	47.22
3	89.10	82.08	48.80	49.10
4	96.70	93.45	49.90	49.44
5	105.90	99.05	51.80	49.88
6	111.40	104.76	.....	50.47
7	117.10	109.68	.....	50.72
8	122.20	114.93	.....	50.79
9	126.60	120.18	.....	51.80
10	132.10	128.53	53.10	52.45
11	136.90	136.40	.....	.....
12	143.20	137.08	.....	.....
13	148.50	139.50	.....	.....

* Girls, 57 per cent.; boys, 43 per cent.

So much has been said and written concerning the prevalence of tuberculosis, nervous diseases and venereal diseases among the French population that, as a basis for our medical work, we proceeded to make as careful a study as possible of these first 200 children; and the accompanying tables are a summary of the interesting points in the histories and physical findings, with such laboratory work as we were able to have done.

Table 1 is of particular interest, showing that 93 per cent. of the married men were in army service;

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

that 95 per cent. of the children had received breast milk for at least three months, and that a rather large percentage had continued to receive breast milk up until the end of the second year.

We were struck with the fact that the French children were shorter in stature than our American children of the same age, and that the head circumference of those 1 year old was relatively larger.

The Wassermann reactions were largely taken in selected cases in which there was a direct suspicion, so the number shown is not an indication of what one would find in the routine Wassermann examination of these children.

As may be gathered from the foregoing, in spite of the fact that these children were living under such abnormal conditions and were almost universally infected with filth diseases, there was little evidence of serious trouble. Of the active tuberculosis which we expected to find, there was less than 0.5 per cent., and this low percentage was maintained throughout the subsequent examination of hundreds more of these children. There was no evidence of shell shock in any case, although many of the children had lived for months within easy shooting distance of the front lines. Although the children, in almost every case, had head or body lice, and many of them had been living in homes where soldiers were billeted, we recognized no cases of typhus fever.

TABLE 3.—PHYSICAL EXAMINATION OF ABOUT TWO HUNDRED FRENCH CHILDREN, REFUGEES FROM WAR ZONE

	Per Cent.
General Appearance	
Underdevelopment	45
Undernourishment	46
Skin	
Old or active impetigo	61.5
Chickenpox, active	6
Vaccination, usually three scars	64
Head	
Shape	
Rachitic	17
Hydrocephalic	1
Eyes	
Conjunctivitis	75
Ears: Otitis media	14.5
Nose	
Mucous discharge	36
Purulent	3
Teeth, poor condition	43.5
Tonsils	
Enlarged	47
Removed	0
Adenoids marked	25
Enlarged Lymphatic Nodes	
Cervical	
+	41
++	5
Epitrochlear	
+	15
++	1.5
Intercostal	
+	3.5
++	0.5
Tuberculous adenitis +	0.5
Chest	
Harrison groove	50.5
Rosary, marked	
D'Espine	
+	22
++	3
+++	0.5
Resonance impaired	3.5
Heart	
Outline normal	100
Murmurs	6
Abdomen	
Type prominent	30
Liver enlarged	1
Spleen palpable	0.5
Reflexes	
Chvostek	13
Knee jerks	
+	63
++	32
+++	1
Spine	
Scoliosis, marked	33.5
Pott's disease	0.5
Shell traumatism	1
Von Pirquet Reaction	Number
Tested	404
Human +	78
Bovine +	31
Bovine +, Human —	9
Wassermann Reaction	
Tested 60 +	2

Gonococcus infection negative in all examined.

Wheat Not Necessary.—We are accustomed to regard wheat as a more or less indispensible article of diet. It isn't. It is an article of luxury, and absolutely nothing else. Wheat possesses over oats, corn and rice absolutely no nutritional quality for man or beast. It has no more protein, and no better protein. It has no more fat, and no better fat. It has no mineral salt better or in larger amounts. It has no more fuel or better fuel. It is just *one* of the cereals, and there isn't the slightest evidence that it is the best one, because so far as comparative tests are concerned in animals, it isn't the best one, it is very far from the best one.—A. E. Taylor, M.D., U. S. Food Administrator.

WORK OF THE CHILDREN'S BUREAU, DEPARTMENT OF CIVIL AFFAIRS, AMERICAN RED CROSS, FRANCE *

WILLIAM PALMER LUCAS, M.D. (SAN FRANCISCO)
Professor of Pediatrics, University of California, on leave of absence; Chief of the Children's Bureau, Department of Civil Affairs, American Red Cross, France
FRANCE

The Children's Bureau, American Red Cross, started its activities last July with eleven members. At the present time the bureau comprises more than 400 members, and is doing children's work and also a good deal of medical work for women throughout the whole of France.

Our first assignment was to take charge of the Childrens' Colony and to develop the hospital near Toul. In this army sector all children under 7 had been ordered back for a distance of 10 kilometers from the front, because of the gas bombing, children under 7 being unable to wear gas masks satisfactorily. Dr. Julius P. Sedgwick of Minneapolis was in charge of the early development of this work, and installed a colony of more than 500 mothers and children in the governmental military cantonment turned over to us for this purpose. Dr. Sedgwick also started a hospital for children, which has since been developed under Dr. Maynard Ladd of Boston, who took charge of the work after Dr. Sedgwick was obliged to return to his university duties the first of this year. We now have at Toul a hospital of 200 beds, fifty of them for maternity cases and the remainder for the diseases of children, both medical and surgical. In this department under the patronage of the préfet, M. Mirman, we have developed one or two other smaller hospitals and a chain of dispensaries in the smaller towns, especially the manufacturing centers—towns of from 10,000 to 20,000 inhabitants. Here our traveling dispensaries have clinics once or twice a week, a physician, nurse and aide comprising the unit. Throughout

Fig. 1.—American Red Cross contagious disease hospital for children, capacity 200 beds, at Evian, France.

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

the war zone we have developed this type of work, our center being some town or city with a small hospital, with the traveling dispensary covering a radius of from 15 to 20 miles. We have had such work at Chalons and also at Amiens and Nesle. At both of the latter, unfortunately, we had to give up in the first offensive this spring. Our work in the war zone

Fig. 2.—Visiting hour at the American Red Cross contagious disease hospital for children, Evian.

at the present time is all under Dr. Maynard Ladd of Boston, who has charge of the development and operation throughout the whole of that section.

Our second large assignment was the work with the *rapatriés*. These are the inhabitants from the north of France, whose country has been occupied by the Germans since 1914. They are sent back first into Belgium. From there, after a stay of a few weeks to a few months, they are brought through Germany and Switzerland, entering France at Evian, on Lake Geneva. Here, when the convoys are operating, from 1,200 to 1,400 people enter daily. The convoys consist mainly of old people and young children, and mothers with large families—all those that the Germans cannot in any way use in their industrial or agricultural work. At Evian we have had the opportunity of working directly under the French Public Health Service, of which Dr. Paul Armand-Delille is chief. The Children's Bureau of the American Red Cross was given charge of all the children's work at this station. We had first the problem of inspecting all the children who entered—some 500 or 600 daily. Since taking charge we have examined more than 40,000 children, picking out those with contagious diseases for our acute disease hospital of 200 beds, which we operate in one of the modern hotels of this summer watering place. We have also had a daily dispensary, which takes care of those who do not have to enter the hospital, but need medical attention before they are sent on in smaller convoys to various departments in the interior of France. As one can readily imagine, this has been a very important public health station. In our hospital, thanks to the excellent work of our various medical chiefs, and especially to the fine medical and administrative qualities of Dr. C. F. Gelston, who has had charge of the work for the longest time, as well as to the efficient nursing service which we have been able to build up, we have had less than 2 per cent. cross-infections, proof enough in itself of the careful and scientific management of such a rapidly changing acute disease hospital. In this work we have been operating in very close conjunction with the French organization for repatriated children of Lyons, of which Mme. Gillet-Motte is chairman. Under her, this work has developed into one of the most remarkable and successful "œuvres" for children in France today. We have just outside of Lyons a large convalescent home of 200 beds for these children, in a château which was given to us for the period of the war expressly for this purpose.

Our third main type of work has been in the larger cities of France as well as in some of the smaller important manufacturing towns, where, on account of the acute congestion in the cities, the medical and social problems have been greatly increased. The medical problem throughout France one can better understand if one realizes that practically all the medical profession of France has been mobilized. Every medical man under 55 is in army service, and most of the good medical men over 55 in the larger cities are also mobilized for a part of their time in the military hospitals of their own cities. This has created a great need for medical service. In many quarters there is only one French physician to 5,000 inhabitants, and in some of the more sparsely populated centers, I am told by the French authorities that there is only one physician to 20,000 inhabitants. Many small towns of from 5,000 to 6,000 have no physician at all. In Paris, Lyons, Bordeaux, Marseilles, St. Etienne, Evian and other manufacturing towns, we have centers for our work. In most of these we have one or more hospitals and a chain of dispensaries and infant welfare centers, with physician and nurse and aide attached. It is in conjunction with these centers that we are carrying on our training schools for health visitors for French women. In this field we already have between sixty and seventy American physicians, about 50 per cent. of whom are women, and the work which they are doing it is impossible for me to praise too highly. The consecration and sacrifice which these physicians are making is most commendable, as is the work which our nursing service has given. Our whole

Fig. 3.—Ward in American Red Cross contagious disease hospital for children at Evian, showing cubicle system by sterile curtains.

nursing service is under the charge of Miss Elizabeth Ash of San Francisco. Under her intelligent supervision and with her broad point of view we have been able to meet this most difficult situation.

Our main efforts for child welfare have been those dealing with infancy, so that where we did not find any establishment for children in France we have tried to increase the amount of nursing and care given

to young infants. This work cannot be overestimated. It is the foundation stone of all child welfare, together with prenatal care, which we have emphasized at all points. But the older child, especially the adolescent child in all countries, has received very little attention,

Fig. 4.—Grandfather dressed in sterile robe and cap visiting his grandson in the American Red Cross contagious disease hospital for children at Evian.

and under present conditions this is almost inevitable. We have been attempting to reach this class as far as possible through our special supplemental lunches in the schools, which Dr. Knox of Baltimore and Dr. Manning of Seattle have developed in Paris, and which we are extending to other cities as the need arises. Our dispensary system in Paris has been worked out in cooperation with the Rockefeller Commission for Tuberculosis. This work was originally developed with Dr. James Alexander Miller of New York, our Children's Bureau cooperating with the commission in one of the sections of Paris where we have worked out a model system of dispensary follow-up care. We are planning to establish a clearing house for children in Paris, as hundreds of refugee children come through from the north of France. The need for this has been felt by many agencies. The size of the problem is almost overwhelming.

Another section of our work is that of assisting French organizations occupied with children. This is really the relief section, and has been developed mainly by Mrs. Hill, who has been working with children (Frontier Children of France) since the war began, and of late by Dr. Reeder, who has evolved a plan for coordinating the child-placing which comes to our bureau with that of all the various French organizations which place children either in homes or in colonies.

The last and perhaps the most important development of our activities is that related to the educational side. This has been developed along the same lines with which we are all familiar in this country. First, we have an educational bureau, by which we have attempted through pamphlets and the press to reach the public. We have publications on prenatal care and the care of the young child, dental hygiene, recreation, etc., and were fortunate enough to secure a number of very good cartoons by the best French artists. This, in conjunction with our traveling and city exhibits for child welfare work, we feel to be one of the most important lines of educational work that we have been able to undertake. The French government, in its Department of Interior, Public Health Service, of which M. Brisac is chief, and in cooperation with the National Association for the Prevention of Infant Mortality, of which Senator Strauss is president, has cooperated very closely with us in the formation of this program, and we are working together on a broad national campaign for the reduction of infant mortality. The problem in France is one not only of reduced infant mortality, but, what is even more serious, a very marked reduction in the birth rate. The infant mortality rate, for instance, for Paris for 1917 was 126, but the birth rate had fallen over 50 per cent. of the normal birth rate, so that the necessity for saving every child's life possible is more than evident. The total infant yearly death rate in France is estimated variously from 80,000 to 100,000 infants a year. We hope by the creation of infant welfare stations, in which France was the pioneer, the first infant welfare station having been started by Budin in 1891, to affect materially a reduction in infant mortality, especially in conjunction with our schools for health visitors, which are being developed in all the large cities in France. Short courses of from five to ten months are carried on in cooperation with the Rockefeller Foundation. In these schools we are training the French women to carry on the "follow-up" work, both social and medical, in our dispensaries.

Lastly, with our traveling exhibits and infant welfare expositions in the large cities, we hope to reach the larger part of the population of France within a very short time. The importance of this cannot be

Fig. 5.—Schoolchildren at Paris being supplied with school lunches by American Red Cross.

overestimated, and it is very gratifying to see the response which we have received not only from the government, but from all classes of people and all the French organizations interested in child welfare work, wherever we have been privileged to commence this work.

The efforts of the Children's Bureau, then, are already numerous. The type of medical assistance

that we need is general rather than special. Perhaps the most lasting result which the Children's Bureau will accomplish will be the "follow-up" work, which will be carried on, we hope, by a large number of trained French health visitors. The child life of a country is the second line of defense. It must be preserved at any cost, and strengthened in every way, if we would keep any nation truly prepared to meet

Fig. 6.—Dinner at Chateau des Halles, American Red Cross convalescent hospital for children near Lyons.

future demands. The conservation of child life is as much a part of this great conflict as the maintenance of armies. It is for the future freedom of the children of today and of tomorrow that our Allied armies struggle at present. The struggle must not be in vain. From such ideals at home the Children's Bureau of the American Red Cross sprang. Toward the consummation of such ideals the Children's Bureau will continue to work.

This paper and the one by Drs. J. P. Sedgwick and N. O. Pearce, which precedes it, are part of a symposium on Child Welfare. The remaining papers, by Drs. L. R. DeBuys, Paul Armand-Delille and Grace L. Meigs, appeared last week.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. DE BUYS, ARMAND-DELILLE, MEIGS, SEDGWICK AND PEARCE, AND LUCAS

Dr. Raymond Hoobler, Detroit: Having heard these facts presented, there is laid on us a deep responsibility. Those of us living in large cities, particularly where munitions are being made, where women labor, and where they will soon be called to the maximum, should not be derelict in our duty. As Dr. Lucas has said, where there were 5,000 women in France making ammunition at the outbreak of the war, today there are 800,000. It hardly seems possible that the same thing will occur in our own land, but if this terrible war continues, it will not be unlikely that we will have to face this same problem. This would develop a tremendous problem among our children. While this problem is comparatively small now, with only a few women working in plants in our home towns,—now is the time for us to begin the campaign, so that as day by day numbers of mothers are called into this great work, we will keep step with the responsibility, and not wait for two, three or four years, and then try to get under the load. Let us get under it in the beginning. How many of us know how many mothers are working in munition plants in our town? If we knew we might be carrying a heavier load now. I suggest that we all go home and find out. A possible method of determination of the number of mothers working in the various factories would be through the Board of Health—having all the factories who employ women report to the Board. After determining the number of mothers who are working in these places, we will have a basis on which to organize some system of determining whether the children of these mothers are being properly cared for; whether any rooms are set aside in munition plants and other factories where these mothers can bring their children and have them supervised while they work. Women with nursing babies should have time allotted to go to their babies at regular intervals. This could be accomplished by having rooms set aside, properly equipped and with competent nurses in charge, to care for these babies at the factories where the mothers work. We should tackle this problem before the burden becomes too large, and little by little keep pace with the tremendous need which is surely coming.

Dr. Edgar J. Huenekens, Minneapolis: The most important thing we can do is to expand the infant welfare work we are already doing. It is well organized in the larger cities, but hardly any work has been done in the smaller communities. About a year ago I was called to see a baby at Little Falls, a town of about 7,000. The nurse in charge of the infant welfare work had already attached to herself ten or twelve babies, so that when I arrived I saw not one baby but a dozen babies. This opened my eyes to the need for this work, and with the aid of the Civic League we started welfare clinics. They have become so successful and so popular that we now have children coming from the surrounding towns. Before we started we had a conference with the physicians of the town to make sure of their cooperation. This clinic was started as an experiment, and it has been so successful that with the cooperation of the state Board of Health, the University of Minnesota and the pediatricians, we are trying to extend such clinics throughout the state. We are trying to have a full time pediatrician go about the state conducting these infant welfare clinics, and to stimulate communities to get public health nurses and to conduct these clinics. We have had great difficulty in getting the cooperation of the State Safety Committtee. A resolution from this body directed to the State Board of Health would bring pressure to bear on these Safety Bureaus. The work in these smaller communities has not kept pace with that in the large

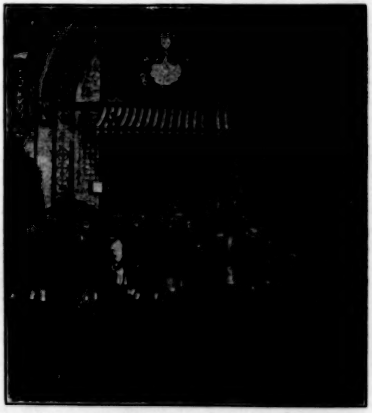

Fig 7.—Entrance to child welfare exhibit at Lyons in April, 1918; 1,000 schoolchildren daily attended the exhibit with their teachers.

cities, and it is often of compartively greater value in the smaller communities.

Dr. Lawrence T. Royster, Norfolk, Va.: This is just the beginning of general plans to be carried out throughout the entire United States, so that every child may be known personally to the Bureau at Washington. It is the only way we can accomplish anything in conservation of child life. In the

child welfare clinic with which I am connected, in a town of 100,000, having an attendance in 1917 of 4,832, just before our weighing and measuring came off we had a house to house canvass. Every child up to the sixth year was registered by an individual registrar going from house to house, so we could check up how many children failed to come to the weighing stations at the end of the week, and I am sorry to say the number coming in comparison with the register is small. There is much to be done to get this knowledge dis-

Fig. 8.—Outdoor kindergarten class, American Red Cross child welfare exhibit, Lyons, April, 1918.

seminated. With all our efforts, a comparatively small number came to us. This is an educational propaganda, like everything else. Education in one form or another is the salvation of our race, regardless of how you may apply it. Everything said here this morning is educational—means educational work on our part—but the application of that education is what we need. I believe the Federal Bureau has eventually in mind, through its Child Bureau, registration of every baby born in the United States, and a record kept of it up to school age, and it is perfectly feasible. If one community can get a census of every baby as we got it, it is not impossible for other communities. It is just a question of whether you want it. Then we can keep track of the population, having them report to private physicians or clinics at regular periods, and thereby build up the nation—a nation that will be stronger and healthier. We know, as Gladstone said "On the health of the people depends the strength of the Nation." Will each one of us go home determined to find out the condition of the children in his own community, and then help this propaganda for individual teaching?

DR. JOSEPH I. GROVER, Boston: In Boston the babies were weighed and measured about a month ago, and the work was carried on by women who evidently knew nothing about it. They did a great deal of harm. One woman in my neighborhood was chosen because she knew how to weigh potatoes. Some of the babies were weighed four or five pounds out of the way. One of the women sent fifteen or twenty babies to a doctor who was a relative of hers, one year out of the medical school. One mother asked the woman in charge what she ought to do about her baby because it was underweight, and she was advised to wean it. These tests, to be of value, should be conducted by people qualified to make them.

DR. FRANKLIN N. ROGERS, Manchester, N. H.: Manchester is a city of 80,000 people and is one of the largest manufacturing cities in New England. About half of the population work in textile mills or shoe shops. At least half consist of women. Like all mill cities where women work of necessity or for gain, there necessarily exists a great demand for child welfare work. This child welfare work has increased since the war began. As more and more men leave our city for the front, the greater will be the number of mothers seeking employment which will of necessity separate them from their children. The question which confronts our city as well as any city of like nature, in this crisis, is how are we going to expand child welfare work in order that we may keep the death rate down. The pediatrician doing child welfare work naturally is called on to do all in his power to help the social service workers. The pediatrician believes that child welfare work is definitely a war work, and I believe that both the pediatrician and the obstetrician should be considered war workers and should be given recognition.

DR. LOUIS H. SCHWARTZ, New York: It should be emphasized that this work is distinctly a war measure. This is just as patriotic work as any other, and provision should be made for it as war work. In New York this work is a great problem. In one zone alone we have 44,000 children from 2 to 6 years of age. I should like to impress on this society that this should be put up as a vital necessity to the country, for which proper provision should be made, and not left to volunteers. The country should be awakened to the importance of systematic, regular examinations of children, and proper registration of them.

DR. JOHN A. FOOTE, Washington, D. C.: Any one who has read the history of infant welfare work in the past realizes that children suffer not only during war but also and still more from economic conditions following the war. The rich nations have always taken very good care of their children. The ancient Egyptians and Babylonians were rich nations and their children were well cared for; but among the poorer nations, for instance China, the drowning of females is common. There are many things that more civilized nations do in exploiting children which cause a great increase in child mortality. If the United States is going to be any different from any other nation in history, it must do this work not only during the war, but must so solidify organization that the work will go on after the war, when the great burden of taxation, and so forth, comes to this now rich nation.

DR. J. T. CHRISTISON, St. Paul: In reference to this so-called "baby week." This work has been carried on throughout the country. In my own city it was conducted by women's clubs, dominated by a woman who calls herself a "doctor of osteopathy." Does the bureau at Washington send out all this literature and cards to such individuals expecting physicians in these cities to fall in line? We did not do it in St. Paul for the simple reason that the supervisor of our Baby Welfare work would not permit us to do so. Why does

Fig. 9.—Indoor kindergarten class, child welfare exhibit, Lyons, April, 1918.

the bureau at Washington not send its literature to the state officers of the various bureaus of health? Then it would get into the proper channels and something would result in a beneficial way. A number of these cards were brought to my office after being filled out and various suggestions offered as to sundry operations on the children which in every case were quite unnecessary. I would like to suggest that Dr. Meigs impress on this bureau the necessity of conducting a campaign of this sort in the right direction.

Dr. Langley Porter, San Francisco: It is undoubtedly true that the bureau at Washington is using a very vital and important force in developing this infant welfare work. This section might put itself on record as expressing appreciation of the work done along this line, and as desiring to cooperate in every other way with the bureau, and expressing the opinion that this infant welfare work should come from people interested in obstetrics and pediatrics. But in this work

Fig. 10.—Milk demonstration at child welfare exhibit, Lyons, April, 1918.

during war time, or post war time, we must have cooperation. We have developed infant welfare work too largely from the side of the medical man and not sufficiently from the side of the sociologist. This body might go on record as stating that we believe much good could be done by incorporating in the physiolgy in the high schools and other schools of instruction simple facts of the physiology of childhood and the hygiene of the child, which would be of great value in education of the masses.

Dr. C. F. Warner, Fort Madison, Iowa: I am not in sympathy with the idea that an all-wise Providence should produce a great disaster in order to make people good, but I think sometimes when we have suffered disaster it brings us together more in the bonds of human sympathy—this we cannot deny. When the Master wanted to be especially effective he took a little child and set it in the midst of them and told them certain things. This has been portrayed in a wonderful manner by those who have spoken before, and I wish only to enforce the sentiment brought out by Dr. Royster, that we must have statistics so that we can follow up these babies in later life. We must look after the welfare of the infants and children in such a manner as to produce the highest class of womanhood and manhood. In these statistics we must individualize, not generalize. What may be true of classes and masses, is not always true of the unit. In this work the profession must assist and the federal authorities must be willing, by legislation, to keep these vital statistics, that they will be not only true, but of such a character as to be of value to succeeding generations, as well as to the individual.

Dr. Francis M. Hollingshead, Columbus, Ohio: I represent the State Department of Health of Ohio and am chairman of child welfare for the National Council of Defense in the state. There are two points of view concerning this plan from the standpoint of the pediatrician. In my state we put the problem to the pediatrician in every community, either directly or through the local health department. In some of the highly organized communities we have had wonderful results, but we have also met with reaction in some localities, because the test is superficial and because it is not a thorough examination, such as we would like to have, hence the pediatrician wants nothing to do with it. If this section is going to take a stand against the present method of work, they are going to commit themselves to help in the work along other lines and to recognize that it is of sufficient value to align themselves with it. There would then be no question of the woman's committee going to them and asking them to assist in the tests. I feel that the educational value of this particular piece of work is sufficient to warrant its being endorsed by the pediatricians.

Dr. LeRoy A. Wilkes, Bridgeport, Conn.: My own criticism would be that the direction is too far away. The head of the work should be in Washington, but the work should be conducted in the communities by people whose life work is among children, and not through women's committees entirely. The women's committees should work through the departments of health, especially where they have a child welfare division. The work of the women's committees should be according to that outlined in Bridgeport—getting all the children to a central distributing agency which the child welfare division of the bureau of health would represent, and the third agency that of the physician. We divide the work into three departments, each conducted by people capable in their particular line. I do not believe in turning the whole thing over to the people who are not trained for the work, no matter how willing they are. A census of the children under 6 can be made often from the public schools, by having each pupil take to his residence a card on which the age and name of every child can be entered. This could be accomplished through the department of schools. These could be card-indexed by the Health department according to addresses and distributed to health stations in the various districts, and in this way the children reached and examined, and placed in the proper channel for treatment when necessary—that is, those who can afford it sent to a private doctor, those who cannot afford to pay for treatment sent to the public clinics.

Dr. J. P. Sedgwick, Minneapolis: These children did not show a large proportion of tuberculin reactions nor a large proportion of Wassermann reactions, as we had been led to expect. The children were in fair condition, but showed markedly the result of poor housing and poor personal hygiene. Impetigo and other skin infections were striking. This shows how much they need the care which the Red Cross is giving them.

Fig. 11.—Baby washed, dressed and put to sleep in glass house at child welfare exhibit, Lyons, April, 1918.

Dr. Grace L. Meigs, Washington, D. C.: You will remember I said that I approached the subject of the weighing and measuring test with some diffidence. The Children's Bureau and I are very glad to have constructive criticism from this body of pediatricians. We are also glad to have your help and interest. In considering the weighing and measuring test, I wish you would think of the problem that faced the Children's Bureau this year. With a very limited appropriation

and a very limited staff it had before it the problem of arousing the country to the fact that the welfare of children is really a war time problem. The interest of every one has been diverted to other things that have a more dramatic appeal, or seem to have a closer connection with winning the war. The experience of other countries has shown that the welfare of children is an important problem in war time and we had to get over this fact to the country.

The plan of the weighing and measuring test contemplates the expert services of physicians and nurses, but volunteer help is necessary for local organization and carrying out of plan; and so the Children's Bureau appealed to the eleven million women organized under the woman's committee of the Council of National Defense. It is only just to ourselves to say that in all of the literature sent out by the bureau we advised the committees on the weighing and measuring test to seek the help of the health authorities and physicians. We have also communicated with the physicians and health authorities asking them to cooperate. Of course in any huge campaign faults are very evident—perhaps more evident now than they will be later. When the whole campaign is a thing of the past we perhaps can tell better what the end results have been. I know I can speak for the chief of the Children's Bureau and say she will be very glad to have suggestions and help from this section of the American Medical Association.

Dr. Hoobler brought up the question of women going into industrial life and its effect on child welfare. We heard from Dr. Lucas of the great employment of women in France and its absolute necessity. Perhaps it is natural to suppose that the same necessity exists in this country at present. I think we should consider a long time before we are sure that that is the case. At present our supply of men for labor is not exhausted. Besides that we have great reserves of unmarried women. Of course, in time this country may be in the same situation as France, but we should not take it for granted that mothers of young children should be urged to work in factories at present. One of the biggest duties in this campaign is to emphasize the fact that we need the women to care for their children in their own homes. Women without these ties should undertake labor in the munition factories, etc. The greatest service of a woman with young children is usually carried out in her own home in caring for her children. The study made by the Children's Bureau in Manchester proves that this is a fact. The infant mortality rate among the babies whose mothers were employed outside of the home was much greater than of those whose mothers were at home caring for their children. That is a basic fact and I think we should remember it in all our thoughts on this subject.

DR. WILLIAM PALMER LUCAS, San Francisco: I just want to say a word or two, following up what Dr. Meigs said, about the necessity and type of child welfare work to be done during the war period. Experience is the best teacher, and we all of us are idealists and would like to do things in the very best and most ideal way. Unfortunately, owing to existing conditions you have to adopt methods that will bring results. I have talked with members of the Children's Bureau and others working along this line. I think they are fully aware of the criticisms that have been made. But what they are after definitely and concisely is to get the public eye on a certain definite problem. We know under modern methods things can be brought to a focus pretty rapidly in this country, and what Dr. Meigs has said along that line is true. I feel from a medical standpoint, as I have watched (if you will allow me to say so) my own development along these problems, that one of the weaknesses of myself was the lack of appreciation of the social and economic problems that enter into big medical problems. I think what Dr. Porter said is very true. The educational side of child welfare has been neglected, not only by educational departments of medical schools, but by the schools at large. That is one side which we must develop more and more. I feel that the physician of today must study social and economic problems. One of the biggest and most successful workers in preventive medicine said to me "the one thing I feel the medical profession as a whole is missing in attempts at preventive medicine is a realization of the economic problem. In my attempts at directing communities, countries and nations to the importance of their health problems, I am directing them more and more through economic avenues." I think that is well worth study. The more we study economic conditions and social problems the more advance we will make in the reduction of infant mortality. We are specialists on the medical side, and we must not feel that because there is a sociologist studying the problem from an economic or social standpoint that his judgment is not to be regarded of the same value as our own. He undoubtedly regards the medical viewpoint in the same way as we do the economic. The sooner we get on common ground and discuss the problem, the sooner we will come to conclusions. Writing letters, discussing from long distance, never affords a solution so quickly as meeting the person directly and facing the problem together.

There is a saying in France which is common in all military circles. It was first started by the publication of a book, whose title is "Carry On." Probably no two words are used more frequently over there. If we could adopt a motto for our babies, we would arrive at a very good conclusion.

DR. LAURENCE R. DEBUYS, New Orleans: We should benefit by the experiences of some of the departments located in Washington. For instance, Dr. Davis, chief statistician for the Department of Vital Statistics, informed me the other day that it would take a number of years for that depart-

Fig. 12.—Playground in front of child welfare exhibit of the American Red Cross, Ministry of the Interior, Ligue contre la mortalité infantile, at Lyons in April, 1918.

ment to accomplish anything without the nation standing behind it. To date only 31 per cent. of the area in the United States registers births and about 60 per cent. registers deaths. This is just an example of what might be expected with individual efforts. Are we to continue with individual efforts in this great problem of the conservation of child life or are we to appeal to the government for federal aid? The conservation of child life should be a war measure. Are we to send all our pediatricians abroad to assist in the conservation of child life there? or, Are we to have our pediatricians, appreciating the pressure made on them, go into the Reserve Corps and forego their positions and responsibilities in their various communities? or, Are we to keep our pediatricians here to assist in conserving the lives of our own infants for the future strength of the nation, and not permit our country to approach the present conditions you have had portrayed to you here today existing in some of the warring nations? The vital problem is to save lives now. As to who shall direct the work? We all know that the problem is an economic one, we also know that the question of conservation of infant life is a medical one. With whom should the consideration of this problem be left? It seems to me that it is a federal problem, yes, a war measure, and that the pediatrician who has given his life to this work should at least be a consultant, if not a director.

Military Medicine and Surgery

CASES OF EMPYEMA AT CAMP LEE, VA.*

PRELIMINARY REPORT

By THE EMPYEMA COMMISSION

CAMP LEE, PETERSBURG, VA.

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MAJOR EDWARD K. DUNHAM, M. R. C.
MAJOR EVARTS A. GRAHAM, M. R. C.
MAJOR JAMES F. MITCHELL, M. R. C.
CAPT. ALEXIS V. MOSCHCOWITZ, M. R. C.
MAJOR RALPH A. KINSELLA, M. R. C.
CAPT. RICHARD D. BELL, M. R. C.
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This preliminary report has been prepared while the investigation was still in progress and contains only such observations, and deductions therefrom, as appear of immediate clinical importance.

Statistical data and laboratory studies must be deferred to a future more detailed report following completion of work still unfinished. This includes serologic, histologic and experimental studies, and observation of cases that are apparently healed, but which experience has shown are still liable to a recurrence of the empyema. Opportunities have not yet arisen to study methods of caring for chronic cavities and sinuses which show no tendency toward a favorable progress.

EDWARD K. DUNHAM, Chairman.

GENERAL RESULTS

The commission has had an opportunity to observe at Camp Lee, Va., 140 cases of empyema associated with a hemolytic streptococcus. Of this number ninety-three were patients who had already been operated on and were in various stages of convalescence at the time of our arrival. The remainder were acute cases which the commission studied during the preoperative and postoperative periods. Of this number, we have had the privilege of directing the treatment in twenty-three successive cases both before and after operation. One of this series of twenty-three patients has died. Of the others, all are apparently out of danger, and thirteen are entirely healed. Our mortality, therefore, has been 4.3 per cent. In the only fatal case there were, in addition to an empyema, multiple small lung abscesses and a very extensive suppurative pericarditis. Our very low mortality in comparison with the much higher mortality that has existed in other camps, as well as in this camp previous to the commission's control of the cases,[1] may have been due somewhat to a change of virulence of the organism and to correspondingly less marked manifestations of its invasion of the body. We feel, however, that the chief factor in reducing the mortality has been the method of treatment; for there can be practically no doubt that our cases have been of the same general type as those that have occurred elsewhere. In every instance a hemolytic streptococcus indistinguishable from those isolated from earlier cases has been found both in smear and in culture from the pleural exudate, and the clinical findings have been in every way comparable to those that were described in the replies to the Surgeon-General's questionnaire of Feb. 20, 1918.

SUMMARY OF METHODS OF TREATMENT

Briefly, the method of treatment has been late operation and careful, painstaking attention to the postoperative care of the patients, including maintenance of the nutrition so far as possible. We feel that the care given to keeping up the nutrition of our patients both before and after operation has been one of the most important factors of all. The details of the dietary and nutritional features of the regimen will be discussed in another section.

In deciding on a late rather than an immediate operation certain observations and principles seemed to be important as indicating that this was the most rational procedure. These may be thus epitomized:

1. The older, commonly accepted ideas of the desirability of an immediate operative interference in cases of empyema following ordinary lobar pneumonia seemed not to be necessarily applicable to the type of streptococcus pleuritis under discussion because of certain radical differences in the nature of the two conditions. In the former condition, when large accumulations of fluid occur they are nearly always definitely purulent when recognized, and their incidence is postpneumonic as a rule, occurring after the acute pneumonic process has subsided. In the streptococcus cases, on the contrary, a massive pleural exudate is frequently present very early, accumulating within a few hours, and often is the first objective sign of the respiratory tract infection. This exudate, moreover, at first is not purulent but is serofibrinous. Our observations show that usually a period of from two to three weeks must elapse before the exudate becomes frankly purulent. These considerations are of great importance because they indicate that if an operation is performed very early in the course of the disease, it will be at a time when from practically every standpoint the patient will be in the worst condition for it, for the following reasons:

(a) Early operation carries with it nearly always the danger of collapse of the lung from pneumothorax. In our experience, all the patients with this infection show a marked dyspnea and cyanosis. The dyspnea is sometimes so great that the respirations are from 50 to 70 per minute, and the patient often presents the picture of an acute air-hunger. Commonly the pneumonia is bilateral, and occasionally the pleuritic effusion is on the side of the better of the two lungs. It is clear that any sudden further increase of the asphyxia by limiting still further the amount of available breathing space will surely be a source of harm to one who needs all the oxygen he can get for his struggle with a severe acute infection. If, on the other hand, the operation is performed later, after limiting adhesions have formed, there is little or no further collapse of the lung because the opening is made into a more or less circumscribed abscess instead of into a free pleural cavity. Furthermore, if at this time the acute severe toxemia has subsided, there is less asphyxia present and less urgent need of oxygen. There is probably also present at this time some com-

On account of demands on our space this article is divided into two parts for publication. The remainder will appear next week.

1. The average mortality based on the replies from the various camps to the questionnaire of Feb. 21, 1918, was 30.2 per cent. The highest mortality given was 84 per cent. in a series of eighty-five cases.

pensatory emphysema which would diminish the danger of an acute sudden asphyxia, even if one lung were to be completely collapsed. Theoretically, it would seem possible to prevent the entrance of air into the pleural cavity by the use of a tightly fitting rubber tube attached to a suction apparatus. Such an arrangement, however, is always somewhat cumbersome and is very likely to be disturbed by the move-

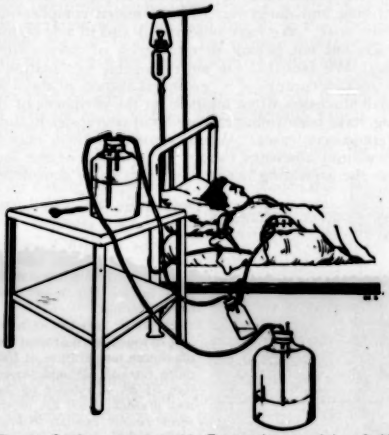

Fig. 1.—Suction apparatus with T-connection permitting flushing of the pleural cavity with Dakin's solution without disturbing the dressings.

ments of the patient during his acute illness when he is frequently delirious and restless. Since we feel that it is of the utmost importance to avoid a pneumothorax during the acute stage, we have hesitated to adopt a method that carries with it the necessary risk of possible disarrangement of the apparatus by an uncontrollable patient with resultant entrance of air into the pleural cavity. On the other hand, we have found a suction apparatus to give very satisfactory results postoperatively in those cases in which operation has not been performed until after the stage of acute illness has been passed. The details of this apparatus are described in another section.

(*b*) There is great danger of producing a blood stream infection, evidently because of absorption of streptococci from the surfaces of a fresh wound. That this is a real danger is shown by the fact that in two cases of early operation, cultures from the blood were sterile before operation, while cultures from the blood taken twenty-four hours after operation showed numerous hemolytic streptococci.

(*c*) These patients in the acute stage are usually in such desperate condition that the shock and the nervous strain incident to even a slight operation are associated with danger.

2. The only theoretical advantages to be gained from an immediate or early operation are: (*a*) the institution of early continuous drainage of toxins and living organisms, and (*b*) the relief of mechanical embarrassment of the lung and mediastinal structures from pressure exerted by a massive exudate.

(*a*) It would seem that the institution of early continuous drainage of a pleural cavity filled with exudate containing many virulent streptococci would be almost a necessity. Yet its importance is apparently not so great as would seem to be the case, judging from the results obtained not only in our own cases but also in those at other camps when operation was delayed. We have observed two patients each of whom carried more than 500 c.c. of pus in the chest for several months without being in a critical condition. One of these, a negro, gave a history of a probable pneumonia of December and arrived at camp with a contingent of newly drafted men during the last week of April. He was able to drill for two days and was then admitted to the base hospital, where it was recognized that he had an empyema. At operation 600 c.c. of pus containing hemolytic streptococci in large numbers were evacuated, and the patient made an uneventful recovery. Not only has he been entirely healed since June 10, but also physical and roentgen examinations reveal a practically normal lung. The other patient also made an uneventful recovery after operation and was healed in six weeks with apparently a nearly normal lung and a gain of 17 pounds in weight up to the present time. Such cases as these, together with our low mortality in the cases in which we purposely delayed operation, suggest that the pleuritic involvement has been of much less importance than the pneumonia in producing the high mortality in this epidemic. It seems clear, therefore, that there is no occasion to resort immediately to operative interference on a lesion which is perhaps a relatively insignificant aspect of the condition during the stage of acute illness. Apparently one may even go so far as to draw the conclusion that immediate rib resection or thoracotomy with drainage is dangerous, meddlesome surgery.

(*b*) The relief of mechanical embarrassment from pressure does not necessitate operation since this may be accomplished by aspiration from time to time with a Potain aspirator or some similar device. Frequent aspirations also accomplish a limited amount of drainage.

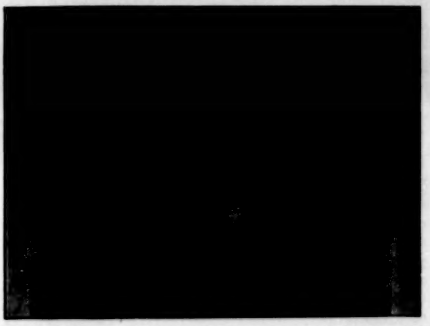

Fig. 2.—Valve on drainage tube made from the cuff of a discarded rubber glove.

USUAL PROCEDURE IN ARRIVING AT DECISION WHEN TO OPERATE IN A PARTICULAR CASE

Our usual procedure in deciding when to operate in a given case has been as follows:

On suspicion of the presence of fluid in the chest in any case of acute respiratory tract infection, a diagnostic aspiration was made. If the effusion was large, a

liter or more was withdrawn slowly by means of a Potain aspirator. The fluid was examined bacteriologically both by smear and culture. If, as was usually the case, the fluid was serofibrinous and contained hemolytic streptococci, the patient was kept on medical and expectant treatment according to the general plan as outlined in the section of this report that deals with the medical features of the question. A careful watch of the patient was maintained by repeated physical examinations, and as soon as there was evidence of a reaccumulation of fluid to any marked extent another aspiration was carried out. As a rule, aspirations were made at intervals of from two to six days, and on an average about four aspirations were made on each patient. Usually by the time of the fourth aspiration a period of from two to three weeks had elapsed, the character of the exudate had changed from a thin, almost transparent, serofibrinous fluid to definite pus,

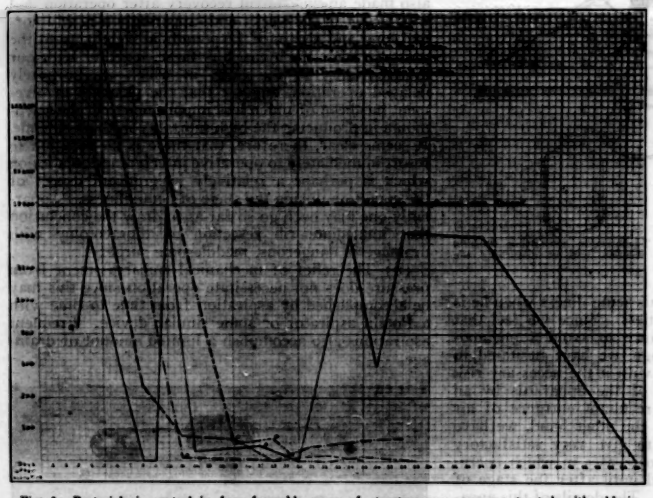

Fig. 3.—Bacteriologic control in four favorable cases of streptococcus empyema treated with chlorin antiseptics. The numbers on the left are the colonieson plate cultures prepared with one loop of secretion.

the pneumonia had improved markedly, and the patient's general condition was incalculably better, as shown by a drop in rate of respiration and pulse, the disappearance of the cyanosis and acute air-hunger, and a fall of 2 or 3 degrees in the temperature. Occasionally it happened that aspirations were performed at intervals of only twenty-four hours when the fluid reaccumulated rapidly. In three cases (13 per cent.), operation was found to be unnecessary because of failure of the exudate to reappear after aspirations. One of these had only one aspiration, at which 600 c.c. of serofibrinous fluid, containing many streptococci, were withdrawn. The patient is now entirely well, and no difference can be made out between the two lungs on examination either with the usual physical methods or the roentgen ray. In another case, complicated by multiple arthritis, the patient appears to be entirely well except for a recently acquired chickenpox. The third patient is now free from fever and is practically well. Two of our patients suddenly developed a spontaneous pneumothorax and required emergency operations because of the presence of alarming symptoms from mechanical interference with the mediastinal structures.

The origin of the spontaneous pneumothorax in this type of case has been a matter of some interest to the commission because the condition is one of the most alarming and dangerous of the sudden complications which arise. We have observed it also in a few cases which did not belong to our series of twenty-three cases. We feel that the most probable explanation is the sudden rupture of a peripheral abscess of the lung. Small abscesses, often multiple, at the periphery of the lung, have been found repeatedly at necropsies in those streptococcus cases. Whether some of them may be inoculation abscesses caused by puncture of the lung with the aspirating needle is a point to be considered.

SUMMARY OF A TYPICAL CASE

Private D., aged 27, was admitted to the base hospital, April 11, with intense stabbing pain in the left lower chest on inspiration.

April 12, marked cyanosis and dyspnea were present with maximum temperature of 102.4, pulse rate of 128, and respiration of 38. Evidence of fluid was present; 1,500 c.c. of thin serofibrinous exudate containing hemolytic streptococci were removed by aspiration from the left chest.

April 15, 1,500 c.c. of slightly cloudy fluid were removed by aspiration. Dyspnea and cyanosis were still marked, but the patient was much relieved by aspiration.

April 17, 800 c.c. of slightly thicker and brownish (old blood) fluid were removed by aspiration. The patient was still in a very serious condition, but improved. The heart was no longer displaced.

Between April 17 and April 22, the patient continued to show improvement, although at times the pulse mounted to as high as 140, the respirations to 60 and the temperature to 102.4. During this time, however, he felt much better, his dyspnea had improved, and there was no evidence of the reaccumulation of a large amount of fluid.

April 27, there was definite evidence of reaccumulation of a moderate amount of fluid. The patient's general condition was much improved. Cyanosis and dyspnea were gone.

April 28, the patient's temperature was 98.8, pulse 112, and respirations 20. Resection of the ninth rib in the scapular line was performed under procain anesthesia, and about 500 c.c. of slightly greenish, frankly purulent exudate were removed. Carrel-Dakin treatment was started, 100 c.c. of 0.5 per cent. sodium hypochlorite every hour.

May 8, the amount of sodium hypochlorite was reduced to 50 c.c. hourly. The patient had been in excellent condition since the operation.

June 2, the Carrel-Dakin treatment was discontinued.

June 10, the wound was completely healed. The patient had been up and around the ward for the last two weeks.

By May 13, cultures and smears from the wound revealed no more hemolytic streptococci, and sterilization was practically complete.

SUPERIORITY OF LATE OVER EARLY OPERATION CONFIRMED BY POSTOPERATIVE RESULTS

Our observations force us to the conclusion not only that a late operation has decreased the risk of death but also that it has, in general, been followed by a less troublesome convalescence. Almost without exception, the cases in which at the present time there are still large cavities are ones in which operations were performed early. Whether or not the fact that the operation was performed late, or in the postpneumonic stage of the disease, has borne a direct relationship to the more rapid postoperative obliteration of the cavity cannot be definitely answered. The observation may be only a coincidence, but yet it has been so striking as to suggest that a definite causal relationship has existed.

Moreover, in the cases of late operation, the tendency of pus to become pocketed after operation during the period of convalescence has been much less. The cases which now present cavities with hour-glass contractions, multiple pockets, pulmonary or bronchial fistulas, etc., are almost without exception those in which an early operation was performed.

SOME OF THE COMPLICATIONS

The most common complications that have occurred in our series have been pericarditis with effusion and multiple arthritis. Three of our patients have had a pericarditis. Two with definite friction rubs but with doubtful effusions have recovered without intervention. The third was in the only fatal case of our series, and, as was stated elsewhere, was complicated by multiple lung abscesses in addition to the empyema.

Multiple arthritis with effusion has been of fairly frequent occurrence, having occurred in four of our cases. In two, aspiration has been done to relieve tension, and a serofibrinous fluid containing hemolytic streptococci has been removed. In none of the cases has operative interference been carried out, and all have recovered with complete restoration of function of the joint. We have, however, observed two cases of suppurative arthritis, not in this series, due to apparently the same organism, which have resulted in more or less permanent destruction of the joint.

SYMPTOMATOLOGY AND MEDICAL CARE

The clinical picture presented by infections of the lungs and pleura due to the hemolytic streptococcus varies. Many of the cases follow other acute infectious diseases, particularly measles. Many are primary in the sense that they do not follow any of the acute infectious diseases. In some the lungs are predominantly involved and there may never be any signs of pleural irritation. In others, the pleura is predominantly involved, although at least in the majority of the cases, there is a preceding infection of the respiratory tract in the form of a bronchitis or a bronchopneumonia. In still others there is a tremendous infection of both lung and pleura. At Fort Sam Houston, Texas, most of the cases followed measles, and bronchopneumonia with or without effusion was the prevailing picture. At Camp Lee, Va., however, most of the recent cases studied by the commission have not followed other acute infectious diseases, and the pleural involvement with large effusions has been striking. Nevertheless, there have been cases of bronchopneumonia without pleural effusion.

The history and symptoms of onset are rather characteristic, yet in many respects they resemble those of other acute infections. Sore throat, coryza, cough, mucopurulent expectoration, headache, general malaise with pains throughout the body, fever, anorexia and at times nosebleed are the usual symptoms elicited in taking a history of the onset. During this stage the patient may not go to bed and may even continue on duty. After these symptoms have existed for a few days to a week the patient has a chill and a sharp pain in one side of the chest, and it is at this time that he is sent to the hospital. A few patients become ill suddenly with a chill and a pain in the chest, but in many of these, close questioning will elicit a history of an infection of the respiratory tract which had been overlooked.

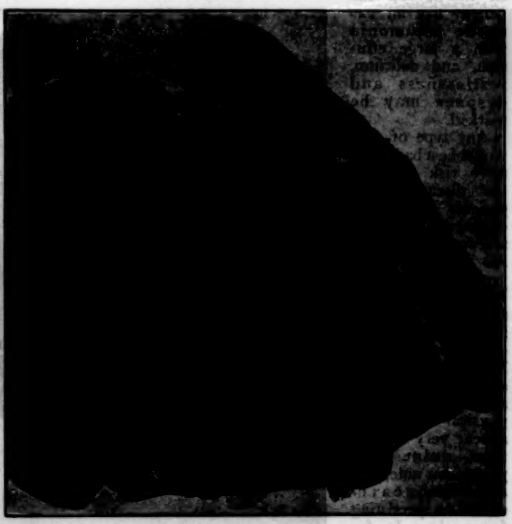

Fig. 4.—Fibrinopurulent pericarditis complicating streptococcus empyema

A patient suffering from a severe bronchopneumonia associated with the hemolytic streptococcus is a distressing sight. He presents the picture usually seen in secondary pneumonias of children. The facial expression is one of anxiety. He is restless, continually complaining of being unable to sleep. There is great difficulty in breathing. He fairly fights for air. There is marked inspiratory and expiratory embarrassment. Often the intercostal spaces and the supraclavicular fossae are drawn in with each inspiration. There is a distressing cough which at times literally exhausts the patient. The face is flushed. The eyes are wide open with white, glistening sclerae. The lips are parched and cracked, yet lacking, as a rule, the herpes usually seen in lobar pneumonia. The mucous membranes of the mouth and throat are dry, so much

so that at times there is difficulty in speaking. There are drenching sweats. The ears, lips and extremities are cold and cyanotic. The temperature is irregularly elevated, but at times may drop below normal, while the pulse and respirations remain rapid. The pulse is often very weak in contrast to the bounding pulse seen in lobar pneumonia. The abdomen is not distended, and the spleen is not usually palpable. On the other hand, the patient with a large effusion and little lung involvement furnishes an entirely different picture. If not delirious he is quiet and does not like to be disturbed, and very often he is drowsy and hard to arouse. The respirations are rapid and may be somewhat labored, but are not nearly so distressing as in the extensive bronchopneumonias. In other details the general picture is the same. Other cases may combine the features of the two types described above. In this group the patient has an extensive pneumonia with a large effusion, and delirium, restlessness and dyspnea may be marked.

Any type of case would be a bad operative risk early in the disease. The patients with bronchopneumonia usually recover by lysis. An afternoon temperature as high as 100 F. may persist for weeks, and there may still be considerable expectoration long after the subsidence of other symptoms. The physical signs disappear very slowly; rales, dulness of percussion note, and altered breath-sounds persisting for weeks. In favorable cases the patients with effusion improve gradually as they slowly gain headway in combating the infection and, assisted by aspiration, eventually reach a point at which they become good operative risks.

Fig. 5.—Large pulmonary abscess complicating streptococcus empyema.

The sputum is usually thick, tenacious, mucopurulent, and may or may not be blood-streaked. Smears show many pus cells and a large number of cocci, often in chains. At times there is phagocytosis of the cocci by the leukocytes. A hemolytic streptococcus is usually isolated when cultures are properly made.

At Camp Lee, daily cultures could not be made, but at least one was made from each patient and sometimes several. In this series of twenty-three only one positive blood culture was obtained before operation.

In practically all of the cases there was a leukocytosis of from 12,000 to 32,000, with an average of about 20,000. The acute cases showed a polymorphonuclear neutrophil count of from 75 to 85 per cent., a small mononuclear count of from 5 to 10 per cent., and a large mononuclear and transitional count of about 10 per cent. In the cases in which pus had been overlooked for a long time there was a leukocytosis of from 12,000 to 16,000, with a polymorphonuclear count of from 60 to 70 per cent., a small mononuclear count of from 16 to 32 per cent., and a large mononuclear and transitional count of about 10 per cent. In the acute cases there was no pronounced anemia but where pus had been overlooked for three or four months there was a marked secondary anemia. In one the red blood count was 2,880,000. The blood platelets were about normal in number.

The urinary output in the very sick patients was decreased, probably because of the drenching sweats and diminished fluid intake. The urinary findings were those common to all severe infections, namely, albumin, and hyaline and granular casts. Red blood cells were found in some instances. Bile was rare.

Heart complications have been frequent. In the series of twenty-three cases there was one extensive suppurative pericarditis confirmed at necropsy, and two of fibrinous pericarditis in which the patients recovered. The myocardium also is damaged. Acute dilatation of the heart is liable to occur on exertion, and therefore prolonged rest in bed with cautious return to normal activities is advisable. Often a tachycardia has persisted for many weeks.

These bronchopneumonia patients are prone to develop lung abscesses. When the clinical picture is considered in connection with the pathology it seems probable that some of these patients will develop a bronchiectasis as an end-result. This series is too small to consider all the complications that might arise, but suppurative otitis media and nonsuppurative multiple arthritis have been observed.

In spite of the fact that a fairly typical picture is usually presented, the differential diagnosis is at times difficult. A careful history, a physical examination, a bacteriologic examination of the sputum, a fluoroscopic examination, a roentgenogram of the chest, and finally, exploratory aspirations are the means at one's disposal in making a correct diagnosis. The physical signs are those usually described as occurring in bronchopneumonia and in pleural effusions. However, the differential diagnosis between a massive consolidation and a pleural effusion is not always easy. Percussion and palpation under such circumstances are by all odds the most reliable physical signs, but should be supple-

mented by roentgen examinations and exploratory aspiration. In passing, two cases might be mentioned in which there was dysphagia and a unilateral dilatation of the superficial veins of the chest due to an extensive pyopneumothorax.

Careful treatment and nursing accomplish much for the very sick patients. The free administration of fluids either by mouth, rectum, subcutaneously or intravenously is of the utmost importance. In desperate cases good results have been obtained by giving 25 per cent. glucose solution intravenously, 500 c.c. instilled during a period of three hours. For restlessness, pain or insomnia, or exhausting cough, morphin is indicated. Atropin and inhalations of steam at times relieve the marked respiratory distress. Cold, irritating air aggravates the cough, but good ventilation is essential.

The illness is usually a protracted one associated with marked loss of weight, and the maintenance of nutrition is correspondingly important.

SURGICAL TREATMENT

I. *Anesthesia.*—Local anesthesia with a 0.5 to 1 per cent. solution of procain was used in all the primary operations. In secondary operations, ether was occasionally used, sometimes exclusively, at other times to supplement the local anesthesia. Two methods of inducing local anesthesia were employed: (1) infiltration of the whole field of operation beginning with the production of a small skin wheal by the use of a hypodermic needle and syringe, and (2) supplementing the local infiltration by blocking the appropriate intercostal nerves in the subcostal grooves close to the spine. This procedure greatly facilitates the operation and minimizes the amount of infiltration at the site of operation. For the simple operation of intercostal thoracotomy or resection of a portion of one or two ribs, procain has always been found to give satisfactory anesthesia when properly administered. No occasion has so far arisen for such extensive secondary operations as the Estlander, Schede or Delorme, but it is possible that later it will be necessary to perform operations of this general nature in some of the old cases with large, persistent cavities. In these, intratracheal anesthesia will undoubtedly be appropriate.

II. *Incision.*—1. Site. This should be chosen with reference to providing good drainage in both the recumbent and the erect posture. A careful physical and roentgen examination should immediately precede the operation to define as accurately as possible the most suitable point at which to open the empyemic cavity. In most instances, this proved to be in the eighth intercostal space, just behind the posterior axillary line; but the selection of this site cannot be laid down as a rule. The needs of each case must be considered separately.

Care should be taken to make allowance for any displacement of the soft parts overlying the ribs due to the position of the arm during the operation in order that the alinement between the different layers of the chest wall shall be perfect when the arm is in natural positions.

2. The incision itself should be of ample length to give access to the underlying structures. One from 2 to 4 inches long has been found satisfactory. The muscular and fascial structures are divided as exposed, and the incision through the pleura is made usually in the intercostal space, though frequently in the secondary operations, resection of a portion of one or more ribs is advisable. It is best not to suture the incision.

In cases that have drained for varying periods of time and drainage has become difficult or very incomplete, the procedures to remedy these conditions must vary according to the nature of the case. Among such conditions are: (*a*) sinuses having a direction or size rendering proper drainage impossible or precluding appropriate treatment of the cavity; (*b*) cases in which premature closure of the sinus had been permitted, with a recrudescence of the empyema, and (*c*) cases in which a rigid walled sinus has formed, possibly with a continuous epithelial lining.

III. *Drainage.*—The importance of good and continuous drainage, not only immediately after operation but also throughout the postoperative treatment of the cavity, cannot be overestimated. Provision to accomplish this end should be made at the operation.

If simple drainage tubes are used, they should be of the largest practicable size. They should also be sufficiently long to enter the pleural cavity, but should not project far into it.

Two devices that have proved serviceable may be specially mentioned:

(*a*) A double-barreled rubber drainage tube of large caliber, deeply fenestrated at the center and the two halves brought together and held in parallel position with a safety pin. When inserted into the wound, this serves the purpose of drainage and also permits the introduction of Carrel tubes through its lumina without obstructing the outflow of the discharge or the reflux following the instillation of Dakin's solution.

(*b*) An arrangement of tubing and bottles designed to drain the cavity with the aid of suction and to instil Dakin's solution at will without disturbing the dressings. This arrangement is made clear by the accompanying drawing, but may be briefly described (Fig. 1).

In order to apply suction to the empyemic cavity it is necessary to exclude air. This is done by passing the drainage tube through a small hole in a piece of rubber dam about 4 inches square, the edges of which, after packing the wound around the tube with gauze, are firmly attached to the skin with broad bands of adhesive plaster. The drainage tube should be long enough for convenient attachment to the rest of the apparatus by means of a T-tube of glass.

One branch of the T-tube is connected with a reservoir for Dakin's solution, the other to a pair of aspirating bottles, a small bottle intervening to collect the discharges. The connections are all made with rubber tubing, and, by alternately clamping and freeing these branches, it is possible to apply moderate suction or Dakin's solution at will.

The purposes served by this apparatus are:

1. The collection of the discharges in the bottle provided for their reception, thus obviating the necessity of changing the dressings.

2. Encouragement of expansion of the lung.

3. Early application of antiseptic treatment to the cavity after operation.

POSTOPERATIVE TREATMENT

All the cases coming under the care of the commission received treatment with some member of the chlorin group of antiseptics. Of these, neutral solution of chlorinated soda, 0.5 per cent. (Dakin's solution) has given the best results. Dichloramin-T, 5 per cent., in chlorcosane, was used in several cases. Chloramin-T in from 0.5 to 1 per cent. aqueous solu-

tion was also occasionally used for irrigation, but appeared to offer no advantages over Dakin's solution. The following is an outline of the treatment with Dakin's solution:

There is a complete change of all dressings and tubes once daily. In the interim, Dakin's solution is instilled in definite quantities at regular intervals, according to the usual Carrel technic, strict attention being directed toward the maintenance of asepsis in all the manipulations:

1. After the removal of the old dressings, the skin is cleansed, first with a dry sterile gauze sponge, and then with one moistened with alcohol.

2. With the aid of a catheter (22 French) introduced into the empyemic cavity, this is irrigated with Dakin's solution flowing from a moderately elevated reservoir until the return is perfectly clean. During this irrigation the patient is directed to change his position to facilitate the flushing of all parts of the cavity, and finally to assume that position which most favors the outflow of any residual fluid.

3. From one to four carrel tubes are introduced into the cavity, the lengths of these and their disposition being governed so as to insure the application of Dakin's solution as far as possible to all parts of the cavity. When this is particularly difficult, a stylet of silver wire (gage 24 to 27) within the tube aids in its direction and retention in a suitable position. Occasionally recourse may be had to the roentgen ray to determine the position of the tubes. The free ends of the Carrel tubes are fixed by means of a strip of adhesive plaster in some position convenient for future instillations of solution, usually in the region of the shoulder.

4. A fenestrated drainage tube, guarded by a safety pin, is introduced alongside the Carrel tubes to insure drainage and a reflux after the instillations of Dakin's solution.

5. The skin in the vicinity of the wound is protected from the irritating action of the solution by strips of gauze impregnated with petrolatum and sterilized in an autoclave. If any portions of skin beyond the limits of this protective covering begin to show signs of irritation, they are treated with a stiff zinc ointment or a thick layer of petrolatum.

6. If there is any extensive area of granulations around the tubes entering the wound, this is covered with gauze moistened with Dakin's solution.

7. The underlying parts are protected from pressure of the safety pin guarding the drainage tube by gauze encircling the tubes.

8. Fluffs of dry sterile gauze are placed over the wound and adjacent parts, and the dressing completed with an absorbent pad and a firmly applied binder.

Sterile rubber gloves are worn, and all tubes and dressings, except the absorbent pad and binder, are handled only with instruments sterilized before use at each dressing.

The ends of the Carrel tubes project above the binder holding the dressing in place. The total amount of Dakin's solution introduced into the cavity at each instillation is distributed equally among these tubes, each being successively connected with the graduated reservoir of solution. The amount of Dakin's solution admitted to the empyemic cavity at each instillation is governed by the size of the cavity, but does not exceed 200 c.c. If the cavity is not too large, the quantity is usually about half its capacity. The interval between instillations is at first one hour during the day and three hours at night. According to the progress attained, these quantities and intervals are modified to suit the needs of individual cases.

Great care should be exercised to protect from infection all those who come in contact with the patients and to prevent the scattering of the organisms as much as possible. Gloves, gowns and face masks are worn by the surgeon, nurses and ward attendants during the dressings. Precautions are taken to prevent the patient from spraying pus from the uncovered wound by coughing, and all soiled dressings are immediately disposed of by being placed in suitable receptacles.

During the course of this treatment, the discharges undergo modifications readily observed at the dressings. Any foul odor is speedily abolished, and the amount of pus diminished. With the disappearance of the pus, particularly in cases of long standing, the discharges frequently become viscid and resemble uncooked white of egg. This has been attributed to the presence of products arising from the action of the hypochlorite on the fibrinous deposit on the pleural surfaces. Its occurrence is transitory, and with its disappearance the discharges become very scanty and the return on irrigation is usually clean from the beginning, but toward the end of the irrigation may be slightly tinged with blood modified in color by the action of the hypochlorite. At this stage of the treatment, plate cultures made from the secretions within the cavity are frequently sterile.

Dichloramin-T dissolved in chlorcosane has been used in a considerable number of cases, in a very few to the exclusion of all other antiseptics. Experience has shown that notable quantities (in one of the cases at Camp Lee, 200 c.c.) of a 5 per cent. solution can be introudced into an empyemic cavity without untoward consequences. In one instance in which it alone was used to treat a recent case, sterilization proceeded with a rapidity comparable to that following the use of Dakin's solution. Nevertheless, observation appears to show it to be less effective than Dakin's solution, particularly in cases of long standing, for the following reasons:

1. The viscosity of the solvent militates against its distribution within the empyemic cavity so that good contact with all parts requiring disinfection is more difficult to attain and more uncertain than when the aqueous Dakin's solution is employed.

2. Dichloramin-T has but little, if any, favorable action toward the dissolution of fibrin. Curdy masses, often of considerable size, are frequently observed in the discharges. These have proved to be compacted sheets of fibrin, evidently detached from the pleural surfaces, but showing no signs of disintegration or the influence of a solvent action. These masses render drainage difficult and often completely arrest it.

3. Prolonged action of the solution on the skin has proved it to be fully as irritating as Dakin's solution. This may be due in part to decomposition of the solutions before use, but must nevertheless be taken into consideration.

The chief advantages in the use of dichloramin-T in these cases appear to be simplicity of application (once daily) and economy in dressings.

In protracted cases, it has frequently occurred that the sinus leading to the cavity was unfavorable for irrigation because of its small size or unfortunate direction. Under these circumstances it is often possible to aspirate the secretions through a soft catheter which finds its way to the dependent portions of the cavity. Suction may be conveniently applied with a bulb syringe holding about 1 ounce. After such evacuation of the cavity, dichloramin-T may be introduced through the catheter. Although this procedure is by no means comparable to securing an opening into the cavity, permitting free irrigation, it has been of aid in the treatment of difficult cases.

The plastic closure of empyemic cavities after cleansing and disinfection with antiseptic solutions is a procedure requiring great caution. In recent cases that have reached this condition soon after operation,

the lung very frequently expands spontaneously so as to obliterate the cavity, and there need be little hesitation in permitting the sinus to close under ordinary precautions against infection. But when the lung fails to expand spontaneously, a careful consideration of the causes underlying this failure, some of which may involve risks of a recurrence of the empyema, should precede the decision regarding operative closure of the sinus.

It has been surprising in several cases to note the remarkable speed with which the cavity has diminished in size or has become obliterated after sterility has been accomplished with Dakin's solution. This has been especially evident in cases in which the interval has not been too long between the operation and the beginning of the use of the Dakin solution. But it has also been observed frequently even in cases in which there had been a long interval, and it has been so impressive that we feel that extensive secondary operations for obliteration of a cavity are unwarranted until after a prolonged trial with the sodium hypochlorite solution has been carried out. Auxiliary measures of great importance which should be instituted simultaneously to aid the expansion of the lung are: (1) blowing against resistance; (2) the use of a valve on the end of the drainage tube to allow egress of discharges but to prevent entrance of air into the cavity (Fig. 2); (3) gentle suction devices, and (4) properly controlled general exercise to incite a more active metabolism, and increased respiratory effort.

Before performing even minor secondary operations on drainage cavities, it has been our invariable custom to submit the patient to a roentgen examination both by fluoroscope and by stereoscopic plates. The object of this examination is to obtain as much information about the cavity or sinus as possible as regards its location, extent and contour. We have found neutral thorium nitrate in 10 and 15 per cent. solutions of use in outlining the cavity. It appears to have a slight irritating action, and sometimes a little bleeding occurs after its use.

In two cases of pleuropulmonary fistula we have used Rutherford Morison's B. I. P. P. (bismuth, iodoform, liquid petrolatum,), but these do not warrant any conclusions.

(*To be continued*)

The Children's Year Campaign.—The facts brought out by the national baby test, conducted by the Children's Bureau, are of interest. It is estimated that already about 6,000,000 children of less than 6 years of age have been weighed and measured, and every state and territory in the Union has been represented in the campaign. A bulletin for mothers on "Child Care" has recently been issued, dealing with the physical defects of children between the ages of 2 and 6, and teaching the mothers to recognize these symptoms and to understand the simple laws of hygiene. The "little mothers" of our large cities, whose playtime is wholly absorbed by the care of their younger brothers and sisters, the boys and girls who carry heavy bundles about our city streets, and the farm children, who are often required to work in fields and gardens too long a time under a blazing sun, are frequently stunted in their development during the years of growth when rest and play are their most important requirements for good health. In calling the attention of parents to this flagrant example of child labor, the Children's Bureau points to the fact that if a child in his growing years is made a beast of burden, in maturity he almost inevitably joins the ranks of the physically unfit and becomes a serious factor in racial decay.

RECONSTRUCTION AND REHABILITATION OF THE TUBERCULOUS SOLDIER

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Much has been said and done in this great war concerning the reconstruction and reeducation of the crippled soldier, but it must be remembered that reconstruction, in perhaps a less spectacular way, applies to medical cases as well. We should not forget, in our zeal to assist the wounded soldier in returning to useful employment, that his less fortunate comrade who becomes stricken with disease may need the same helping hand. The one that presents the most difficult problem is the ill-fated consumptive. No tokens of bravery or emblems of the hero are pinned on him, although the fact that he has broken down with tuberculosis means he has given every ounce of resistance to his country's cause.

It is well known among sanatorium physicians today that the ultimately bad result in the treatment of tuberculosis is usually due to the perfunctory way in which patients are discharged from institutions. They are carefully treated for six months or a year, and then all responsibility for them ceases and they are turned out to assume their places in normal life without any further assistance or supervision. The treatment is only partly completed, and this part is often wasted by relapses. In other words, the reconstruction and rehabilitation of the consumptive is badly neglected.

There are a number of reasons for this. In the first place the reconstruction phase of the treatment presents a difficult problem. Prolonged rest, so essential in the treatment of active cases, naturally leads to laziness. We start out with a sick consumptive and end up with a well loafer. In the Army we receive a tuberculous soldier and discharge a hospitalized pensioner. These patients do not want to be rehabilitated. Indolent and indifferent, they prefer to remain dependent on their people or the government. The harmful results of exercise in tuberculosis when employed too early, and the absence of any safe indication as to when exercise should be begun, cause this stage of the treatment to be postponed and the patient finally discharged without it. Then again, when a patient becomes an arrested or quiescent case, he usually leaves the sanatorium before the hardening up process is completed and his cure thoroughly tested. The idea that a patient cured in one climate cannot live in another is due to the fact that he goes west, becomes an arrested case, and returns home to work without hardening up. Even when discharged after a period of graduated exercise, he goes back to his former occupation without any further medical supervision, and without any gradual transition from partial to complete working ability having been arranged. The fact that he is a consumptive often excludes him from employment and further complicates the question of rehabilitation.

The four most important factors in the treatment of tuberculosis, I should say, are rest, fresh air, nourishing food and psychology. To be able to outline to the patient the plan of treatment leading up to reconstruction and rehabilitation and to keep that constantly before him will have a wonderful physical effect. It will stimulate hope and desire for recovery, secure his confidence and cooperation, and save him

from laziness and dependence. When the patient reaches the stage of treatment that permits him to sit up and be on his feet, some light mental and physical work will help to occupy his mind and prevent him from becoming introspective. The thought that this is a promotion and is the beginning of his climb to complete restoration and usefulness will have a most excellent mental result. A note of warning should be sounded, however, to the overenthusiastic reconstructionists lest they begin their methods too early in the case in which absolute rest, both mental and physical, is required. Vocational reeducation and training must not be in the nature of a surrender of the principles of treatment to the nervous and irresponsive patient who desires to work too soon. The necessity of reserving strength and nervous energy should never be lost sight of, and when in doubt it is often better to err on the side of too much rest. The exact time to begin reconstruction work will tax the ingenuity of the best sanatorium physicians. No fixed rule applies to every patient, for aside from normal temperature and abatement of symptoms, the peculiarities of each individual case must be taken into consideration.

The principal reason that warrants my presentation of this paper is nine years' clinical experience in handling tuberculous soldiers at Fort Bayard, N. M. According to the methods taught by Colonel Bushnell, our commanding officer, these men received most excellent treatment; but regulations with reference to return to duty and discharge of tuberculous soldiers, together with their pension rights, made attempts at reconstruction and rehabilitation very difficult. Even the small percentage returned to duty, after being hardened up by graduated exercise and work under medical supervision, were sent back to their organizations where they were shown no special dispensation commensurate with their condition and were no longer under medical control, but instead were looked on with suspicion by their company officers and were recommended for discharge or further treatment at Fort Bayard the first time they went on sick report. Patients not returned to duty were discharged from the army, but this did not necessitate their leaving the hospital. They could remain as beneficiaries of the soldiers' home as long as treatment was required. Yet there was no authority for holding them, and as soon as they received their discharge or were examined for pension, they usually left the hospital regardless of their condition and the stage of treatment. They went against the advice of their physicians and before any reconstruction methods could be applied. As the usual pension allowance would not permit them to live in comfort on the outside, they had two courses to follow: either work, or spend most of their time in soldiers' homes. Many chose the latter, but others undertook to work without having first tested out their cure. Seldom could they select their employment, and often they had to work under unsuitable conditions. As a result, most of them relapsed and either died or returned for treatment. The soldiers' home chronics led a lazy and dejected existence, their one ambition generally being increased pension. A certain number, however, when able, were given employment at the post, in the laundry, post exchange, dairy, in the farms and in the gardens, and, although working, were under the same restrictions as the other patients. Enlisted men of the Medical Department were usually returned to duty at Fort Bayard and were carefully watched. Officer patients were frequently placed on duty at the hospital before joining their commands. My impression was that these patients were more contented and did much better than those who, after becoming quiescent, did nothing or left the institution.

The new arrivals and very sick patients gave very little trouble, but the convalescent class or ambulant patients were constantly getting into mischief. Continual vigilance was necessary to prevent gambling, drunkenness, the introducing of liquor, etc. Patients went "absent without leave," and there was a tendency to fault finding and discontentment. Everything was done to prevent this by supplying various forms of amusement and entertainments. Prescribed distances to walk were seldom carried out. At one time vocational training was suggested; but as none volunteered for the work, it was never introduced.

A series of conditions, over all of which no one had control, made the reconstruction part of the treatment unsatisfactory. These men were taught to rest, this was preached to them day in and day out; the physician could make them no definite promises about future employment; they listened to the discouraging experiences of returning patients, and they also heard plenty of pension talk, so that when the time came for reconstruction the proper incentive for wage earning was lacking. While I believe these ambulant patients would have been happier and more contented and their morals improved if their time between rest hours could have been occupied in vocational training and education, to have successfully introduced such a system then would have been doubtful. For the success of such a program three things would have been necessary: work shops, incentive to work, and the assurance of suitable employment. Work shops could have been obtained if it could have been proven that the end justified the means; but incentive to work was only partial, and suitable employment very uncertain. I mention the Army's past experience at Fort Bayard not only to emphasize the difficulties to be encountered in reconstructing the tuberculous soldiers, but also to show the need of this phase of the treatment. I believe vocational training, if introduced as a real future and not a sham for the patient, will change the whole atmosphere of the tuberculosis hospitals, making them more popular and easier to administer. In our campaign against tuberculosis we must educate the public that the careful consumptive is not a menace to his associates; that he is not to be treated as an outcast and a leper, and that a conscientious effort must be made to provide him suitable employment.

RECONSTRUCTIVE POLICY OF THE SURGEON-GENERAL'S OFFICE

The policy of the Surgeon-General is to transfer all tuberculous soldiers to Army tuberculosis hospitals and not discharge them until they become arrested and reconstructed cases, or until they have obtained as complete recovery as can be expected. To this end eight hospitals are now in operation, or under construction in various parts of the United States. These hospitals are located at New Haven, Conn.; Otisville, N. Y.; Markleton, Pa.; Azalea, N. C.; Waynesville, N. C.; Denver; Fort Bayard, N. M., and Prescott, Ariz. When completed they will accommodate more than 6,000 patients. They all embody the modern ideas of sanatorium construction and demonstrate that

no expense has been spared by the government to provide the best of treatment for tuberculosis soldiers. Five of these hospitals are in operation and are rapidly filling with patients. The policy of the Surgeon-General is to transfer the sick to hospitals nearest their homes. In case tuberculosis develops overseas the patients will be returned to the United States.

If left to the soldier whether he prefers discharge to treatment in a tuberculosis hospital, he will almost invariably choose the former, and after discharge it is rarely that he will voluntarily submit to sanatorium discipline, so it has been deemed wise to order all to tuberculosis hospitals. Here they can be taught how to take care of themselves and be given proper treatment. The success of these hospitals, although carefully planned and constructed, will be a failure unless the right kind of medical officers is secured to administer them. We are endeavoring to obtain suitable officers for such positions, and are training others at the U. S. Army General Hospital, New Haven, Conn., where we have established a school for this purpose. In fact, all medical officers selected for the staffs of Army tuberculosis hospitals are required to take a course at this school in order to standardize methods of treatment and administration.

While the Tuberculosis Section of the Surgeon-General's Office has general supervision over all Army tuberculosis hospitals, the reconstruction work will be instituted and carried out by the Reconstruction Division. This assigns officers trained and skilled in this specialty, together with instructors and assistants, to each hospital, and builds work shops for the vocational training. It might be added that not only will the educational work in these hospitals be in the nature of vocational training, but also emphasis will be laid on training the patients in hygiene, home and shop sanitation and methods of proper living, with the view of preventing recurrences. A bill now before Congress provides that after a patient is discharged and returns to civil life, the Federal Board of Vocational Education will attend to his further rehabilitation. I believe it is the policy to utilize, in an advisory capacity, the services of this board, while the patient is still under military control.

Thus the Surgeon-General proposes to carry the tuberculosis soldier to the point at which his disease is arrested and he is hardened up ready to return to work. The Federal Board of Vocational Education will then receive him and look out for his welfare as far as employment is concerned. The Bureau of War Risk Insurance of the Treasury Department attends to the financial side, for as soon as a tuberculous soldier is discharged, provided his disability is in line of duty, he is entitled to compensation and, if insured, war risk insurance. The amount of compensation is based on the degree of disability, and in order to encourage rehabilitation, reeducation and vocational training, it is provided that no reduction in the rate of compensation shall be made for individual success in overcoming the handicap of a permanent disability. It is also stipulated in the bill now before Congress that the Bureau of War Risk Insurance is to have the power and duty of ordering suitably discharged men "to follow such course of vocational rehabilitation as the Federal Board of Vocational Education shall prescribe and provide."

It is believed that most patients with arrested cases of tuberculosis can return to their former occupations, except those employed at hard manual labor, very dusty trades, mining, etc. It is not always necessary that they should work outdoors, but they should be employed and live under sanitary conditions and their work carefully controlled by medical supervision.

The whole plan of reconstruction in tuberculosis, as well as other diseases and injuries, is to guide our disabled soldiers back to health and useful employment, imbued with the idea that they are still serviceable citizens and not candidates for soldiers' homes and an existence spent in idleness. The task will be a difficult one, but when we consider the efficient organization of the Reconstruction Division in the Surgeon-General's Office and the interest being shown both in and out of the Army in regard to this work, we can only feel confident of its success.

THE SIGNIFICANCE OF PRESYSTOLIC THRILLS IN THE EXAMINATION OF SOLDIERS

A FUNCTIONAL PRESYSTOLIC THRILL

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In textbooks as well as in recent articles in the literature are statements regarding the palpatory findings in mitral stenosis which, while true, have been followed in certain instances so literally and uncritically, we believe, that numbers of men in our Army have been either rejected or given a surgeon's certificate of disability for mitral obstruction when no cardiac abnormality existed. The Army, therefore, has lost both officers and men who are capable of full, active service, so far as the cardiovascular system is concerned.

In discussing the diagnosis of mitral stenosis, the statement is made by Sir James MacKenzie[1] that "in the very early stages—some years before the appearance of a murmur—I have detected a slight presystolic thrill." Sir William Osler[2] says of the presystolic thrill, terminating in the sharp, sudden, systolic shock, "This most characteristic of physical signs is pathognomonic of narrowing of the mitral orifice, and is perhaps the only instance in which the diagnosis of a valvular lesion can be made by palpation alone." In a recent article, Thomas Lewis,[3] in discussing the occurrence of thrills in the effort syndrome or, as he now designates the condition, neurocirculatory asthenia, says, "All cases with presystolic thrills belong to an entirely different group, and are discharged from the army."

To the statements quoted, made by authorities of the first rank, all will subscribe in connection with mitral stenosis. And yet one may be certain that, in the absence of other signs of mitral obstruction or of a history of an acute rheumatism or of distress on effort, none of the authors named would diagnose

1. MacKenzie, Sir James: Diseases of the Heart, London, 1914, p. 331.
2. Osler, Sir William: The Principles and Practice of Medicine, New York and London, 1918, p. 822.
3. Lewis, Thomas: Report on Neurocirculatory Asthenia and Its Management, Mil. Surgeon, 1918, 43, 409-426.

mitral stenosis on an inconstant thrill, such as we are about to describe; nor would such a man be excluded from active service in the Army.

It is precisely such individuals, giving neither a history of rheumatism or chorea, nor of unusual dyspnea on exertion, in whom we have encountered slight presystolic thrills at the apex, ending in a more or less well marked systolic shock, but without other evidence of cardiac abnormality.

Early in the course of our work as cardiovascular examiners of the Eighty-Third Division, N. A., at Camp Sherman, Ohio, in the fall of 1917, we were impressed by the finding of presystolic thrills in recruits in whom we could detect no other evidence of valvular disease of the heart. Our work since then has served to strengthen this impression and to demonstrate the great frequency of this phenomenon.

CHARACTERISTICS OF THE THRILL

The characteristics of the thrill and the associated findings, based on our notes made in the autumn of 1917 and amplified by subsequent experience, are as follows: The thrill is one of short duration, felt only at the apex of the heart, usually at the point of maximal impulse, preceding the apex thrust and terminating with the shock of the first sound. It is never, in our experience, as intense as the thrill felt in well marked cases of narrowing of the mitral orifice. Furthermore, it is best felt when the heart's action is accelerated, with the patient in erect posture. It is almost always lost when the patient is recumbent, particularly when the heart rate slows in recumbency. Indeed, with a slow, quiet action of the heart, the thrill is commonly lost even in the erect posture. The presystolic thrill is more frequent in individuals having a long, slender thorax; it may be perceptible only during expiration.

A systolic, apical shock of variable intensity is palpable immediately after the thrill. Customarily the shock is not marked, though in a few instances it has been so pronounced that we have felt, before completing the examination, that we were dealing with true mitral stenosis. Occasionally, a weak, double systolic shock is palpable with light touch (always, we have observed, associated with marked reduplication of the first sound at the apex). This, too, in the majority of instances, becomes less evident or vanishes when the subject lies down.

With the presystolic thrill, we have found almost constantly a reduplication of the first sound at the apex, usually audible also at the tricuspid area, and at times maximal here. Like the thrill, the reduplication usually becomes less evident or imperceptible, when the soldier is placed in the dorsal position. But reduplication of the first sound at the apex with the subject standing is usually present in the normal heart; it occurs frequently with no thrill and is less dependent on the frequency of the pulse than the presystolic thrill. In subjects with thrill, it is common to find the second part of the reduplicated sound louder than the first, thus simulating a crescendo effect.

Frequently, a soft, functional systolic murmur, fairly well localized at the apex, becomes noticeable in recumbency, but this is by no means the rule. In some instances the murmur has been constant and has been audible in the left axilla.

Presystolic murmurs we have not been able to detect, either before or after exercise, or with the subject standing or recumbent.

The second pulmonic sound is not accentuated when the individual stands, though rarely it may be split. In the recumbent posture, on the other hand, we have not infrequently noted that the second pulmonic sound is louder than the second aortic, and it may be reduplicated. But this alteration in the second pulmonic sound, particularly in thin chested men, is met quite as often in normal hearts without thrill as in those with it.

There has been, in short, no evidence of disease of the heart, and since one encounters this thrill with great frequency in soldiers who complain of no symptoms on physical exertion and in whom no evidence or history of previous rheumatic infection can be obtained, we look on the presystolic thrill described as functional—a normal phenomenon in certain individuals during periods of excited heart action, whether the result of emotion or of effort.

FREQUENCY AND SIGNIFICANCE

That the presystolic thrill we have described is not of itself a contraindication of active military training is proved by the following observations: At Fort Oglethorpe in recent examinations by one of us (M.) of men who have received military training from three to ten months, we have found many with presystolic, apical thrills, with hearts normal in other particulars. The number of cases examined is not large enough to enable us to predict with accuracy the relative frequency of such thrills, but that they are common is shown by the fact that in one group of twenty men, six had distinct presystolic thrills, and in a second group of six soldiers there were three with thrills, all of whom had been free from symptoms while training, and were examined prior to departure for overseas service. All had good color, responded normally to the exercise test, and were normal in other respects.

In twenty-three men of the first draft newly arrived at Camp Sherman, we have full notes showing the presence of presystolic thrills such as we have described. These men were examined for the most part in September and October, 1917, though a few of them were not seen until November or December. The subsequent history of this group shows (May 16, 1918) that fourteen of them are on active duty; five more men it has been impossible to trace, but their names do not appear on the list of men discharged, and it is probable that they are still in the service. Four of the men having such thrills have been discharged. Mitral stenosis was given as the cause of discharge in one (a colored private). The cause of the discharge of the second is not stated, while the third and fourth were discharged with diagnosis of hypertrophy of the heart and dilatation of the aorta and of mitral insufficiency, respectively. None of the four were examined by us just prior to discharge, and we cannot, therefore, go into greater detail regarding the findings leading to discharge.

It seems clear, however, that the presystolic thrill cannot be of any military significance, if unassociated with evidence of cardiovascular disease, when fourteen—or, more probably, nineteen—men entering the Army can undergo from six to eight months of intensive training without cardiac symptoms.

We have encountered the functional presystolic thrill very frequently in individuals ill with chronic infections such as pulmonary tuberculosis, and also in convalescents from scarlet fever, measles, pneu-

monia, mumps, acute cerebrospinal meningitis, etc., in whom slight bodily exertion leads to tachycardia.

Further evidence of the frequency and significance of the functional presystolic thrill is furnished through observations of Capt. Julian E. Gammon, M. R. C., who has recognized the nature of the thrill independently and who has generously permitted us to quote part of his data. He has noted the effect of posture and the importance of acceleration of the heart in the detection of the thrill, as we have. In March, 1918, eleven patients in a small ward, convalescent from acute infections, were examined independently by Captain Gammon and two associates. After each had completed his examinations, comparison of findings revealed the fact that all had found a presystolic thrill in seven of the eleven patients. No other signs suggesting organic disease of the heart were found. Teleroentgenograms were made of the seven men with presystolic thrill; no cardiac enlargement was detected in any of them. Furthermore, none of the patients gave a history of acute rheumatic fever or chorea, or of symptoms of cardiac embarrassment on effort prior to admission to the hospital. In all of them, the Wassermann reaction was negative.

It is thus apparent that presystolic apical thrills are of very common occurrence in the erect posture when the heart action is accelerated. They are encountered in normal individuals as well as in convalescents and in those ill with chronic infections and with neurocirculatory asthenia with no demonstrable myocardial defects.

OBSERVATIONS OF OTHER AUTHORS

In the literature, our search, necessarily limited, has revealed no report of presystolic thrills in normal hearts. Sewall[4] described sounds audible at the apex in certain normal hearts which simulated the circulatory findings in mitral stenosis. He is perfectly familiar,[5] too, with the presystolic thrill, though it is not described in his paper. He describes several modifications of the crescendo tone of functional region:

> Most commonly it occurs as an extremely short, smooth tone, with an acute accent apparently sharply terminating with the beginning of ventricular contraction. In other cases of what may be called the functional presystolic murmur, the crescendo tone is rough and vibrating in character and of perceptible duration. One other presystolic auditory symbol, closely allied to the latter, is found in certain of the so-called "reduplications" of the first sound of the heart. When such a reduplication is the weaker of the two elements and precedes the contraction of the left ventricle without intermission, the first sound may appear to begin with a crescendo tone. Such modifications of the normal first sound are found only in cases in which the general clinical condition signifies either essential cardiac weakness or perturbation due to acceleration of the circulation; this acoustic phase is therefore of distinctly diagnostic worth.

In our studies we have been able to confirm Sewall's observations. By far the commonest auscultatory finding at the apex in our cases with thrill has been a reduplication of the first sound, with the accent on the second half of the reduplication. But, as already stated, we look on reduplication of the first mitral and tricuspid sounds with the subject erect as normal. It is encountered much more frequently than the presystolic thrill.

4. Sewall, Henry: A Common Modification of the First Sound of the Normal Heart Simulating That Heard in Mitral Stenosis, Am. Jour. Med. Sc., 1909, 138, 10-16.
5. Sewall, Henry: Personal Communication to the Authors.

Bridgman[6] has shown more recently that there is normally a presystolic sound which is usually below the range of human audibility. By means of electrophonograms he estimates that this normal sound possesses vibrations at the rate of about 25 per second. The sound begins from 0.06 to 0.1 second before the first sound. Whether its vibrations are accountable for the functional presystolic thrill, we are unable to say. As the duration of the sound is only 0.04 second, it seems probable to us that it is not the cause of the thrill, which seems more prolonged.

The great majority of presystolic thrills encountered in soldiers will be found, we feel convinced, to be of the harmless, functional type which we have described. Their presence, however, is an indication for a particularly careful inquiry into the history and for a painstaking, thorough examination of the cardiovascular system. The two pathologic cardiac conditions most likely to give rise to presystolic thrill at the apex are mitral stenosis and aortic insufficiency. In the latter, a presystolic apical thrill is encountered usually only in those cases in which the presystolic murmur of Flint is audible, as Thayer[7] and others have shown.

In view of our findings, we are unable to agree with the statement of Lewis to the effect that all men with presystolic thrills should be discharged from the Army. Doubtless, in making this statement, he refers to soldiers with other evidences of mitral stenosis.

In his wonderful report on the "effort syndrome," Lewis[8] says: "It may be taken as an axiom that no soldier who is free from symptoms on duty has an affection of the heart which incapacitates him, and this axiom may be adopted irrespective of any unusual sign found in the heart." This statement confirms us in our opinion as to the prognostic innocuousness of the presystolic thrill we have described.

CONCLUSION

A presystolic thrill best felt in the erect posture, when the heart's action is accelerated through emotion or exercise, associated with reduplication of the first sound and a more or less marked systolic shock at the apex, becoming less perceptible or disappearing when the patient is in the recumbent position, is not disqualifying for full, active military service, in the absence of evidence of cardiac disease. It is a normal phenomenon in a certain proportion of healthy adults. It may also be encountered in those suffering with the effort syndrome and with chronic infections, and is frequently found in convalescence from acute infections.

6. Bridgman, E. W.: Notes on a Normal, Presystolic Sound, Arch. Int. Med., October, 1914, pp. 475-480.
7. Thayer, W. S.: Observations on the Frequency and Diagnosis of the Flint Murmur in Aortic Insufficiency, Tr. Assn. Am. Phys., 1901, 16, 393.
8. Lewis, Thomas: Report on Soldiers Returned as Cases of "Disordered Action of the Heart" (D. A. H.) or "Valvular Disease of the Heart" (V. D. H.), Medical Research Committee, National Health Insurance, Special Report Series, No. 8, London, 1917, pp. 1-63.

The Cost of Infectious Diseases.—Scarlet fever, diphtheria and measles cost the people of Chicago (estimated) $7,562,442 for the year 1916. Some toll to pay. And yet much of it, if not all, might have been prevented. It can confidently be asserted that this tremendous bill, which the people of Chicago were forced to pay, was due largely to their carelessness and indifference. Scarlet fever cost $2,170,459; diphtheria, $4,535,395, and measles cost $856,588; total, as stated, for the three diseases, $7,562,442.—*Bulletin*, Chicago School of Sanitary Instruction.

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SATURDAY, AUGUST 3, 1918

SCIENCE AND THE FOOD ADMINISTRATION IN WAR

Although our public press has given scant notice of the existence of an Inter-Allied Commission on Alimentation, designated in some reports as the Scientific Food Commission, the significance of its organization deserves to be widely heralded. The Inter-Allied Conference, in London, Paris and Rome, of representatives of France (Gley and Langlois), Italy (Bottazzi and Pagliani), the United Kingdom (Starling and Wood), Belgium (Hulox), and the United States (Chittenden and Lusk) marks the recognition of a principle—the essential propriety of calling on men of science trained in the study of nutrition for expert advice in relation to the food problems now confronting the world. This was not done by the nations involved in the earlier days of the war. Physiologists and scientifically trained advisers or administrators received little consideration from the European governments; indeed, to an outside observer it seemed almost as if the expert in nutrition had been consistently "snubbed" in the management of the food situations. It remained for America, long taunted as the land of the "practical" man where dollars and cents leave little place for theoretical science, to show to the world the correct way to approach questions that cannot be solved satisfactorily or definitively by the political strategist or the untrained propagandist.

The Food Administration of the United States—an organization or division of the government made indispensable early in the war—has from its very inception recognized the supreme importance of consulting scientific men in those fields in which they may be presumed to have superior wisdom. The Food Administrator, Mr. Hoover, is himself a man trained in scientific methods and in full sympathy with the aims of science. He insists on scientific surveys as a basis of all important actions; and while he is intimately conversant with the industrial and economic factors that are so important in general in food control, this "food dictator" never loses from his mind the physiology, the psychology or the sociology of nutrition. As a member of the administration staff has expressed its purpose, a fundamental aim is to bring all of the men who deal with the particular aspects of the problems in trade in close contact with the scientist, so that each may appreciate the other's point of view. Thus it would be a serious error for any government to attempt a reorganization of the dietary of its citizens or even of its domestic animals that was contrary to the dictates of scientific intelligence. Who is to determine what changes are safe, what reductions or substitutions can be made without detriment to health or efficiency? Who shall be the critic of the food factors on which national vitality hinges if not the men who have spent their lives in the investigation of the science of nutrition?

To its credit let it be reiterated that the United States Food Administration has never failed to understand the value of scientific experts. Only recently the *British Medical Journal* has pointed out that any propaganda having for its object the encouragement of food production and of economy in the use of food should be organized and directed by men of science well acquainted with the subject. Our English contemporary frankly admits that this elementary principle was at first neglected in Great Britain. "Even in Germany, which can boast of its Liebig, Pettenkofer, Voit and Pflüger, and which still is the home of Rubner and Zuntz, the counsel of the physiologist was not sought at first; although it appears, to quote the *British Medical Journal*, that the truth of the "elementary principle" is beginning to be recognized in Germany too, where "voices are being raised in favor of consultation of scientific and medical experts by the authorities."

How well the scientific side of our national Food Administration has been organized is perhaps best exemplified by the character of its representatives. An Advisory Committee on Alimentation includes Dr. Carl L. Alsberg, chief of the U. S. Bureau of Chemistry; Director R. H. Chittenden of the Sheffield Scientific School; V. L. Kellogg of Stanford University, who was active in the relief of Belgium; Dr. C. F. Langworthy, nutrition expert of the U. S. Department of Agriculture; Graham Lusk of the Cornell University Medical College; E. V. McCollum of Johns Hopkins University; Lafayette B. Mendel of Yale University; Raymond Pearl, statistician of the administration; A. E. Taylor of the University of Pennsylvania, and President R. L. Wilbur of Stanford University. The Advisory Committee on Public Health contains the names of Dr. L. P. Ayres of the Russell Sage Foundation; Dr. Herman Biggs; D. L. Edsall of the Harvard Medical School; Dr. Cary T. Grayson of the U. S. Navy; A. W. Hewlett of Stanford University; John Howland of Johns Hopkins University; F. G. Novy of the University of Michigan; R. M. Pearce of the University of Pennsylvania; H. Gideon Wells of the University of Chicago, and

Lieut.-Col. W. H. Welch. Amid the criticisms leveled at so many branches of the government in its gigantic efforts to win the war, it is worth while to point to one branch at least in which correct principles have been followed in pioneer ways. Guided by the judgment of such consulted experts, the medical profession may and should join in the efforts to dispel public alarm when wheat is forced to give way to other cereals, when the allowance of meat is reduced, when sugar is restricted to 3 pounds per person per month, and when other innovations are suggested in the interests of interallied food economy. We can do this the more gladly now that our allies too have recognized the value of scientific advisers in a conference that studies the food resources, the food needs, and the nutritional conditions in the allied nations at war.

BACTERIOLOGY OF WAR WOUNDS OF THE EXTREMITIES

Sacquépée[1] has made a careful study of a large series of war wounds of the extremities, with particular reference to the conditions preceding and accompanying infection. He determined the different kinds of bacteria and paid special attention to the number at different times. The enumeration was made by counting the bacteria in stained preparations according to the method of Carrel, by means of which it is possible to calculate approximately the number of bacteria in a given volume of exudate. This direct method of enumeration does not permit the recognition of any particular species except possibly the streptococcus. The method, however, is of value because by counting the bacteria one can determine in a rough way the rapidity with which they multiply. In the cultural work, Sacquépée made use of the accepted aerobic and anaerobic methods as well as of certain special methods. It appears that practically all severe (osteomuscular) war wounds of the extremities are contaminated with bacteria from the first, but not necessarily at once infected. Of 233 wounds examined by Sacquépée before any surgical treatment had been applied, 228 were contaminated and five sterile, two of the latter being revolver wounds. Of the 228 wounds, fifty-eight were contaminated exclusively by aerobic bacteria, seven by anaerobic, and 163 by both kinds. Of 100 wounds of which cultures were made within twenty-four hours and before infection could be recognized, 85 per cent. gave staphylococci, 12 per cent. streptococci, 40 per cent. enterococci, 20 per cent. diphtheroids, 68 per cent. *B. perfringens*, and 22 per cent *B. sporogenes*, and a number of other forms in fewer cases. We see that of the aerobes, the staphylococcus and the enterococcus predominate, and of the anaerobes, *B. perfringens;* the streptococcus and the more dangerous anaerobes (*vibrion septique*, 3 per cent. and *B. bellonensis*, 4 per cent.) being relatively rare. These proportions may vary according to climatic, geographic and anatomic conditions; in rainy weather the wounds are more contaminated and the anaerobic forms predominate. In clayey soil, the streptococcus and the pneumobacillus seem favored; in chalky soil, the enterococcus. Wounds with comminution of bone are in general more contaminated than simple wounds; thus, *B. perfringens*, that is, the gas bacillus, was found in about 85 per cent. of the fractures of the lower extremities.

We see that the important cocci are the streptococcus and the enterococcus, which Sacquépée thus distinguishes: In broth, the first forms long chains; on agar, shorter chains; it gives small colonies, a granular growth in broth, is of feeble vitality, and is hemolytic. The enterococcus is pleomorphic on agar; in broth, it forms short chains, masses and diplococci; on agar slants, small bluish colonies; in broth, turbidity with sediment. It acidifies and coagulates milk, and it is not hemolytic. Whether or not this enterococcus corresponds to any special variety of streptococcus cannot be decided from the facts at hand.

Every wound, then, is contaminated from the beginning, but not, as might be taken for granted, at once infected. Between the time of contamination and actual recognizable infection a certain period elapses, during which the microbes multiply; but the end of this period is not easily defined. It may be regarded as at an end, however, when the clinical conditions clearly indicate that infection is present; and Sacquépée shows that at this time bacteriologic examination gives a flora that seems characteristic of infection at least in numbers. This period of incubation is variable: some wounds are infected rapidly, others more slowly. The contamination of wounds with subsequent infection is, above all, the result of the introduction of foreign bodies, as projectiles and frâgments of clothing, which are contaminated with the bacteria of the skin or of external origin. It is about the foreign body that the microbes multiply first, and it is from here that they pass along the track of the wound and into the depths of the tissues. Sacquépée found that in the first hours it was difficult to demonstrate any bacteria. From the seventh to the twelfth hour or so, multiplication is easily recognized, however, each cubic millimeter of the exudate containing about 600 germs, the multiplication being more rapid when the tissues were contused, and it may increase rapidly from now on, clinical conditions generally indicating infection. Now the number of bacteria increases rapidly and progressively for about thirty-six hours; at first aerobic forms, usually nonpathogenic, but soon the anaerobic forms begin to multiply also, and there may be a relative diminution in the nonpathogenic aerobes at the same time as there is increase in the pathogenic,

1. Sacquépée, E.: Etudes bactériologiques sur les plaies de guerre (blessures ostéo-musculaires des membres, Jour. de phys. et de path. gén., 1918, 17, 621.

such as the enterococcus and the pneumobacillus. It seems that the second day is the time for the streptococcus to begin development. Sacquépée recapitulates the details of his observations somewhat in this manner: In osteomuscular war wounds of the extremities, infection almost without exception becomes imminent between the seventh and eleventh hour after the receipt of the wound, and infection is established between the twelfth to the seventeenth hour so far as the anaerobes are concerned, and between the eighteenth and forty-eighth hour so far as the aerobes are concerned. The practical lesson from the surgical point of view is, of course, that intervention is the more likely of success the earlier it can be made.

VENTILATION AND SCHOOL HYGIENE

The engineer of the Chicago Commission on Ventilation, W. J. Mauer,[1] has remarked that the ventilating engineer stands in ill repute today in the eyes of many, not because of lack of knowledge or skill on his part, but because of lack of uniformity of opinion and the need of standards of good air conditions and installation methods. Ventilation is a definite problem which cannot be solved by the haphazard method of opening a window here and there. When one stops to remember that mankind is more immediately dependent on air than on either food or water, it seems surprising indeed that so little serious attention and scientific study have been devoted to the air we breathe, in comparison with diet and drinking supplies.

Motion, coolness, a certain degree of humidity, freshness—each of these factors has at some time been emphasized in relation to proper ventilation. The fear of drafts, at least of gentle drafts such as belong to ventilation schemes, is decreasing. The suspicion of subtle unidentified volatile "animal" poisons in assembly halls has been dispelled by the demonstration of their nonexistence. The propaganda for fresh air in public places has, however, found a topic for debate in respect to the methods of ventilation to be employed. Speaking specifically, the uncertainty concerns the comparative value of the open air and the mechanical type of ventilation. To cite an illustrative case we may ask, Shall our schoolrooms be ventilated by the system of fans or by open windows?

This is a timely question. The summer vacations are periods for repairs and alterations in school buildings. The period for essential changes that conduce to child health are at hand. Working in cooperation with the New York State Commission on Ventilation, whose investigations have been recorded from time to time in THE JOURNAL, the Bureau of Child Hygiene of the New York City Department of Health has contributed some striking evidence on the subject.[2] In a comparison involving 5,533 pupils in many classrooms, the relation of the temperature and type of ventilation of the schoolrooms to absence due to respiratory disease was investigated. It was found that children in classrooms with closed windows and ventilated by mechanical methods, such as the plenum fan system, were more subject to such ailments severe enough to keep them from school attendance than were children who were in classrooms kept at the same or lower temperature and ventilated wholly by open windows. Furthermore, in the closed window, mechanically ventilated type of room, the rate of respiratory diseases occurring among pupils in actual attendance, that is, not ill enough to be kept at home, was 98 per cent. higher than in naturally ventilated schoolrooms at the same temperature (about 68 F.), and about 70 per cent. higher than in the open window type of classroom kept at about 50. There was no difference between the sexes. Contrary to popular notions, the relative humidity was in no case a causative factor in the occurrence of respiratory illness among schoolchildren. These observations on the hygiene of ventilation speak for themselves. Incidentally they give evidence of the value of one of the bureaus in the municipal health department organization of New York City which has recently become the target for something savoring of political interference.

THE ALLERGIC BASIS OF SYMPATHETIC OPHTHALMIA

The allergic theory of a sympathetic ophthalmia was first advocated by Elschnig.[3] He assumed that an injury to the uvea of the exciting eye led to the disintegration of uveal tissue which was absorbed and, acting as antigen, produced hypersensitiveness of the organism and especially of the other eye, whereupon the circulating antigen would react with the sensitized eye and produce an allergic reaction manifested clinically as sympathetic ophthalmia.

To fulfil the tenets of this theory some constituent of uveal tissue must be able to act as an organ-specific antigen in the same animal, and ocular allergy or anaphylaxis must be demonstrable in a properly sensitized animal by means of the antigen introduced into the blood stream; that is, uveal tissue absorbed from one eye must be capable of sensitizing the other eye in the same animal.

Elschnig used complement fixation for the study of the immune bodies; other investigators have studied this problem, but with somewhat divergent results, using the epiphanin and precipitin reactions as well

1. Mauer, W. J.: Ventilation of Army Barracks, Am. Jour. Pub. Health, 1918, 8, 112.

2. Baker, S. Josephine: Classroom Ventilation and Respiratory Diseases Among Schoolchildren, Am. Jour. Pub. Health, 1918, 8, 19.

3. Elschnig, A.: Arch. f. Ophth., 1909, 75, 459; 1910, 76, 509; 1911, 78, 549, 1911, 79, 428.

as complement fixation. Recently Woods,[4] at the University of Pennsylvania, has made experiments primarily to study the immunologic properties of uveal tissue, and especially those of the pigment. He repeated substantially the work of Elschnig, and while his results do not seem as clear cut as those of Elschnig, they indicate that the uveal pigment is antigenic and lacks species specificity but possesses organ specificity. This is shown by the fixation of complement, by the use of serum against the uveal pigment of the dog with beef pigment as antigen, and by the use of serum against beef pigment with dog pigment as antigen. By perfusion experiments, Woods demonstrated that while the defibrinated blood of a normal dog caused no ocular reaction, when the antigen, uveal tissue or pigment to which the dog was sensitized was added to the perfusion fluid, a prompt contraction of the pupil occurred, followed shortly by small hemorrhages throughout the fundus. This is in agreement with the observation of Dale and Schultz, who discovered the contraction of sensitized smooth muscle in the presence of specific antigen. When injected into the vitreous of one eye, both heterologous and homologous uveal tissues were absorbed; after a suitable period to bring about a state of allergy, the injected eye was enucleated, and a week later the remaining eye was perfused with specific antigen, and allergic reactions resulted invariably.

In considering the results of these experiments, it should not be overlooked that they bring additional evidence in support of the cellular theory of allergy or anaphylaxis. The results are of general immunologic interest also because they show that the protein in the uveal pigment belongs to a limited class of proteins which are peculiar in that they give rise to antibodies that are specific for these proteins in whatever species they may occur; that is to say, the reactions are organ-specific and not species-specific. Heretofore the only other well established example of this organ specificness has been the crystalline lens. To the practical ophthalmologist the results should be of great interest not only because they would seem to throw light on the nature of sympathetic ophthalmia but also because they indicate the necessity of preventing as much as possible the absorption into the general circulation of uveal materials.

4. Woods, A. C.: Jour. Immunol., 1918, 3, 75.

Nutrition.—To the trained eye, the general appearance of the child may reveal much that is hidden to the mother. The posture, the tissue turgor, firm resistant subcutaneous tissues speak for health; flabby, nonresistant ones for malnutrition. Expressionless, tired looking children with dark circles about the eyes need to have their diets revised, or else have grave disturbances of health. Cyanosis of the cheeks, ears and finger tips may speak of cardiac or pulmonary disease. The bony changes in the skull of rachitic children are recognized at a glance. Disproportion between various skeletal members may reveal achondroplasia or other structural deformity.

Current Comment

ENZYMES IN TUBERCLE BACILLI

That many micro-organisms contain and produce enzymes of the type familiar in connection with the digestion of foodstuffs is a commonly known fact. For some bacteria this has been established with scientific precision, and their equipment of suitable enzymes has been assumed to play a part in the nutritive processes of these cells as well as in the disintegrative or other changes which some of them bring about in the tissues or fluids wherein they find lodgment and develop. The tubercle bacillus, on the other hand, has until recently been regarded as devoid of the ordinary well known enzymes. Not all investigators of the chemical bacteriology of this group have failed to obtain evidence of these digestive agents. An occasional report has recorded their presence.[1] It has remained for the development of more refined methods of estimating enzymatic performance to demonstrate something more definite about the tubercle bacilli. The new studies of Corper and Sweany[2] of the Municipal Tuberculosis Sanitarium in Chicago indicate that both the human and bovine varieties possess autolytic enzymes. The bacilli themselves, or the autolysates therefrom, possess a trypsin-like enzyme capable of splitting proteins in alkaline solution; an erepsin-like enzyme capable of decomposing peptone in acid solution; a small amount of pepsin-like protease capable of digesting proteins in acid solution; a nuclease that will split nucleic acid; and a urease. Although lipase has been reported, carbohydrate-digesting enzymes could not be detected. If we seek for an explanation for the tardy discovery of these facts in a much investigated micro-organism, it must be recalled that the sluggish tubercle bacillus has long been regarded, in common with the related acid-fast lepra and smegma bacilli, as an organism biologically and chemically distinct from the ordinary rapidly growing bacteria. So far as the equipment of enzymes is concerned, this now appears to be a quantitative rather than a qualitative distinction.

THE SIGNIFICANCE OF WEIGHT AT BIRTH

The weight of infants at birth is subject to marked variations. In the case of extremely low weights it is presumable that the prenatal development has not been satisfactorily completed. But even when such admittedly exceptional circumstances are left out of consideration, there is a not insignificant range of variation in what may be tentatively termed the normal weight of human infants at birth. By a careful study of the statistics of growth during the early days of life in infants nourished with milk, the most acceptable food, Hammett[3] has evolved some interesting theses regarding the infant at this period of develop-

1. Kendall, A. I.; Day, A. A., and Walker, A. W.: Jour. Infect. Dis., 1914, 15.
2. Corper, H. J., and Sweany, H. C.: The Enzymes of the Tubercle Bacillus, Jour. Bacteriol., 1918, 3, 129.
3. Hammett, F. S.: The Relation Between Growth Capacity and Weight at Birth, Am. Jour. Physiol., 1918, 45, 396.

ment. The records of more than five hundred individuals at the Boston Lying-In Hospital show that the growth capacity of human infants during the first two weeks after birth is in a large degree dependent on the weight at birth. Roughly, it is inversely proportional to the initial weight. The ability to recover and pass the initial weight after the postnatal decline obviously varies in the same way, so that at the completion of the period studied, 82 per cent. of those infants weighing between 5 and 6 pounds at birth had recovered or passed their initial weight, as compared with 20 per cent. of those weighing from 10 to 11 pounds. The intermediate groups vary inversely as to their weight at birth. These facts recall the contention of Minot that the rate of growth is a function of age. As he expressed it, "the more rapid growth depends upon the youth of the individual." From this Hammett jumps to the conclusion that the weight of an infant at birth is an index of its relative physiologic age. Sixty-five per cent. of all infants weigh between 6 and 8 pounds at birth. The opinion has been advanced, furthermore, that a birth weight lying between 6 and 8 pounds is indicative of the completion of the intra-uterine growth cycle, that weights under 6 pounds represent physiologically younger individuals, and that those over 8 pounds at birth have completed and passed this cycle and are physiologically older.

METABOLISM IN MALARIAL FEVER

In afebrile conditions, the production of heat in the body equals heat elimination, so that the body temperature is kept at a constant level. Obviously in fever either or both of these factors may become upset. Under normal conditions of health, heat production is enormously increased during severe exercise or in such a physiologic response as the shivering after exposure to cold. But in such instances of increased metabolism no marked rise in temperature occurs, for the heat elimination is increased to compensate for it. From such considerations it would appear as if in fever there must be some disturbance in the power of the body to rid itself of heat. In Coleman and Du Bois'[1] classic calorimetric observations on the metabolism of typhoid patients, an increase in heat production was found to accompany a rising temperature in nearly all cases observed. The heat elimination was not equal to the heat production, but rose to meet the higher level of metabolism. Barr and Du Bois,[2] likewise working with the calorimeter of the Russell Sage Institute, have added a valuable study of metabolism in malarial fever to the already numerous list of contributions of this organization to clinical calorimetry. They have arrived at the conclusion that in malarial paroxysms the increase in body temperature is due to an increasing heat production, which more than offsets a slightly increasing heat elimination. During a chill the heat production may increase from 100 to 200 per cent., falling immediately thereafter to within from 20 to 38 per cent. of the average basal level. At this time there follows a fall of temperature due to the greatly increased heat elimination. According to Barr and Du Bois, there is no indication of abnormal processes of metabolism in malarial fever except that the protein metabolism is somewhat increased.

1. Coleman, Warren, and Du Bois, E. F.: Clinical Calorimetry, Paper 7, Calorimetric Observations on the Metabolism of Typhoid Patients With and Without Food, Arch. Int. Med., May, 1915, p. 887.
2. Barr, D. P., and Du Bois, E. F.: Clinical Calorimetry, Paper 28, The Metabolism in Malarial Fever, Arch. Int. Med., May, 1918, p. 627.

Medical Mobilization and the War

Medical Military Information

The following pamphlets have been prepared and are now available for distribution by THE JOURNAL. These pamphlets will be sent on receipt of postage as stated following the title:

1. Information Regarding Medical Service in the United States Army: Organization; Appointment in the Medical Reserve Corps; Reporting for Duty; Insurance, Compensation, Civil Rights; Customs of the Service; Work in the Training Camps; Equipment of Officers. Pocket size, 39 pp. 3 cents.

2. Standards of Physical Examination Governing the Entrance to All Branches of the Armies of the United States: Form 75, Issued Through the Office of the Provost Marshal-General. 3 cents.

3. Physical Examinations Under the Selective Service. Report of the meetings held on this subject in Chicago, June 13 and 14. 54 pp. 6 cents.

4. Reconstruction and Rehabilitation of Disabled Soldiers. A report of the meetings held on this subject in Chicago, June 13. 6 cents.

5. Trench Fever. A Report of the British War Office Trench Fever Investigation Committee, reprinted from THE JOURNAL of July 6, 13 and 20. 44 pp. 6 cents.

6. The Nature and Treatment of Wound Shock and Allied Conditions. Report of a special investigation committee of the Medical Research Committee of Great Britain. 104 pp. 20 cents.

Personnel of the Medical Department

For the week ending July 26, 1918, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 929, including 1 major-general, 65 colonels, 112 lieutenant-colonels, 296 majors and 455 lieutenants.

MEDICAL RESERVE CORPS: 22,149, including 1,502 majors, 6,506 captains and 14,141 lieutenants. On active duty: 20,381, including 1,428 majors, 6,022 captains and 12,931 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,199, including 22 lieutenant-colonels, 264 majors, 256 captains and 657 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 360, including 6 brigadier-generals, 86 colonels, 258 lieutenant-colonels, 9 majors and 1 captain.

THE DISCHARGES to date are:

	Number		
Causes	M.C.N.A.	M.R.C.	M.C.N.G.
Physical disability	0	737	54
Inaptitude	0	276	21
Other branches of service	3	644	74
Resignations	0	188	34
Domestic troubles	0	61	1
Needed by community	1	50	0
Deaths	1	96	6
Dismissals	0	16	4
Duty completed	0	3	0
No reasons given	0	14	1
	5	2,085	195

American Medical Men Decorated

Lieut. J. Breckinridge Bayne, Washington, D. C., who recently arrived from Roumania, was awarded a decoration by the King of Roumania for his efficient work in fighting the typhus epidemic in that country.——Surg. Wrey G. Farwell, U. S. Navy, Washington, D. C., in duty with the Marine Corps, has been cited for valor in rendering first aid with Col. Arnold W. Catlin, Brooklyn, of the Marine Corps.——Lieut. Theodore H. Sweetser, M. R. C., U. S. Army, New York City, has been recommended for a British War Cross, because of gallantry and devotion to duty near Passchendaele.——For courage and steadfastness during ten days and nights of continuous service, Capt. Harry Rogers, Orange, N. J., in command of the American Ambulance Service with the French Army has been decorated with the Croix de Guerre with a gold star.

Wounded

It is announced that P. A. Surg. Sydney Walker, Jr., U. S. N. R. F., Chicago, attached to the Marine Brigade in France, has been severely wounded in action.——Lieut. Howard L. Beye, M. R. C., U. S. Army, Evanston, Ill., on duty with the American Expeditionary Forces in France, was severely wounded, July 15.——Asst. Surgs. Lester L. Pratt, Orlando H. Petty, U. S. N., both of Philadelphia, attached to the U. S. Marine Corps, are reported to have been severely wounded in action, July 14.——Capt. William J. McGregor, M. R. C., U. S. Army, Wilkinsburg, Pa., who recently suffered the amputation of both legs on account of wounds had a narrow escape from death recently when the hospital in which he was lying was bombed by German airplanes.——Capt. Charles H. Arnold, M. R. C., U. S. Army, Lincoln, Neb., on duty with the British Expeditionary Forces, while caring for the injured, June 1, was wounded by a German sniper.——Capt. Daniel A. Webb, C. A. M. C., Scranton, Pa., on duty with the expeditionary forces in France, was recently wounded in the left hand.——Lieut. Walter J. Daly, M. R. C., U. S. Army, Philadelphia, received severe shrapnel wounds and is now said to be in a base hospital in a serious condition.

Prisoners

The following medical officers are said to be prisoners in Germany: At Camp Villingen, Lieut. Franklin Burche Pedrick of Washington, D. C., captured at Fleurboix, April 9, and Bernard James Gallagher, Waseca, Minn., captured at Marcelcave, May 28; at Camp Tuchel, Lieut. John S. Abbott, St. Paul, captured, March 21, at Laguycourt; at Camp Hamlin, Lieut. Louis Martin Edens, Cabool, Mo., captured, April 10, at Messines; at Bad Stuer, Lieut. Maurice S. Redmond, M. R. C., Pittsburgh, captured at Ploegsteert, April 11.

Surgeon Whiteside Missing

In the sinking of the U. S. S. *President Lincoln*, which was torpedoed by an enemy submarine, May 31, with the loss of three officers and twenty-five enlisted men, P. A. Surg. Lindsay C. Whiteside, U. S. Navy, Washington, D. C., a graduate of Jefferson Medical College in 1907, aged 32, and a Fellow of the American Medical Association, is reported to have gone down with the ship.

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, and July 13, 20 and 27.

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Birmingham—Moore, C. H.
Dothan—Ellis, J. T.
Huntsville—Wilson, F. B.
Montgomery—Thigpen, W. G.
Prichard—Long, D. J.
Valley Head—Norton, E. M.
Walker Springs—Rudder, B. C.

ARIZONA

Mayer—Poole, R. E.
Tucson—Thomas, C. A.

ARKANSAS

Fort Smith—Moulton, E. C.
Prescott—Hesterly, J. B.

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Dinuba—Tillotson, C. A.
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Rhinelander—Garner, H. L.
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Tomah—Sheehy, T. F.
Wanatosa—Gillis, J. D.

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PROMOTIONS

To Be Colonels, Medical Corps, National Army: Lieut.-Cols. CHARLES E. MARROW, A. W. SHOCKLEY, SANFORD H. WADHAMS, HARRY L. GILCHRIST, CHARLES R. REYNOLDS, PAUL C. HUTTON, WM. E. VOSE, ERNEST L. RUFFNER, ROBERT U. PATTESON, MATTHEW A. DuLANEY, HERBERT G. SHAW, LOUIS, BRECHEMIN, Jr., CLEMENT C. WHITCOMB, WM. R. EASTMAN, JAMES L. BEVANS, WM. L. KELLER, HAYWOOD S. HANSELL, JAY W. GRISSINGER, JOHN W. HANNER, JAMES D. FIFE, ROBERT H. PIERSON, JAMES I. MABEE, GEORGE P. REED, RALPH S. PORTER, PERCY L. JONES, CHARLES L. FOSTER, ORVILL G. BROWN, JOSEPH F. SILER, THEODORE LAMSON and ERNEST G. BINGHAM, Medical Corps, U. S. Army; Majors JOHN M. T. FINNEY and WM. S. THAYER, Medical Reserve Corps.

To Be Lieutenant-Colonels, Medical Corps, National Army: Majors GUY N. RUKKE, ARTHUR N. TASKER, HIRAM A. PHILLIPS, HENRY C. COBURN, Jr., ARNOLD D. TUTTLE, DANIEL P. CARD, RALPH H. GOLDTHWAITE, FREDERICK S. WRIGHT, DANIEL W. HARMON, JAMES C. MAGEE, NORMAN L. McDIRMID, ROBERT W. KERR, LEON C. GARCIA, ALBERT S. BOWEN, GEORGE M. EDWARDS, GEORGE B. FOSTER, JOSEPH CASPER, HENRY BEEUWKES, EDWARD M. WELLES, Jr., WM. H. THEARLE, CHARLES C. DEMMER, LARRY B. McAFEE, ADAM E. SCHLANSER, THOMAS C. AUSTIN, JAMES R. MOUNT, ROYAL REYNOLDS, RALPH G. DeVOE, WIBB E. COOPER, THOMAS L. FERENBAUGH, EDWARD L. NAPIER, FREDERICK H. FOUCAR, ROBERT C. McDONALD, HOWARD CLARKE, CLEMENS W. McMILLAN, HARRY G. FORD, HENRY C. MADDUX, ALBERT P. CLARK and CHARLES E. McBRAYER, Medical Corps, U. S. Army; JOEL E. GOLDTHWAIT, THOMAS W. SALMON, HUGH H. YOUNG, JAMES T. CASE, CHARLES H. PECK, THOMAS H. BOGGS, JAMES F. McKERNON, GEORGE E. BREWER, JOHN H. GIBBON, FREDERICK A. BESLEY, GEORGE W. NORRIS, HARVEY CUSHING, GEORGE W. CRILE, JOSEPH A. BLAKE, JAMES P. HUTCHINSON, NATHANIEL ALLISON, EDWARD L. KEYES, ANGUS McLEAN, RICHARD H. HARTE, ROGER I. LEE, FRED T. MURPHY, WM. E. LOWER, WM. DARRACH, FREDERICK A. WASHBURN, ASTLEY P. C. ASHURST, WARREN L. BABCOCK, COLIN R. CLARK, EDMUND D. CLARK,

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CORRECTION

In the issue of May 4, under the head of "Orders to Officers of the Medical Reserve Corps" appeared the notice of the discharge of Lieut. FRANK E. WHEATLEY of North Abington, Mass., on account of physical disability. We have been informed that the information sent to us was erroneous.

ORDERS TO OFFICERS OF THE MEDICAL CORPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

To Camp Cody, Deming, N. M., as camp surgeon, from Fort Riley, Major JOHN J. REDDY.

To Camp Devens, Ayer, Mass., to command evacuation hospital, from Roland Park, Major GEORGE C. DUNHAM.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. ROBERT J. PLATT.

To Camp Greene, Charlotte, N. C., base hospital, from Fort Oglethorpe, Col. HENRY PAGE.

To Camp Hancock, Augusta, Ga., for duty, from Camp Sheridan, Major CHARLES C. HILLMAN.

To Camp MacArthur, Waco, Texas, as assistant to camp surgeon, from Fort D. A. Russell, Lieut. HENRY C. BIERBOWER. To command base hospital, from San Francisco, Major ROBERT DUR. HARDEN.

To Camp Meade, Admiral, Md., as division surgeon, from Fort Riley, Lieut.-Col. HENRY C. PILLSBURY.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Sheridan, Major ROSS H. SKILLERN.

To Camp Sheridan, Montgomery, Ala., as division surgeon, from Camp Hancock, Lieut.-Col. WILLIAM M. SMART.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Hancock, Major GEORGE M. COATES.

To Chicago, Ill., American Medical Association, for duty, in addition to his other duties, Major JOHN R. McKNIGHT.

To Fort Du Pont, Del., for duty, from New York, Col. MARLBOROUGH C. WYETH.

To Fort Oglethorpe for duty, from Fort Riley, Col. WILLIAM N. BISPHAM, Lieut.-Cols. THOMAS J. FLYNN, HENRY C. PILLSBURY, HOWARD McC. SNYDER; Major CHARLES L. GANDY, Lieuts. JOHN E. BOLAND, MATTHEW A. McGARTY, ANDREW W. SMITH.

To Fort Riley as assistant to camp surgeon, from Douglas, Lieut. CORNELIUS O. BAILEY. As division surgeon, from Camp Sherman, Lieut.-Col. GLENN I. JONES.

To Hoboken, N. J., for duty, from Camp Gordon, Lieut. ALBERT W. GREENWELL; from Fort Leavenworth, Lieut. WILLIAM S. McCANN.

To Mineola, L. I., N. Y., for duty, and on completion *to his proper station*, Col. WILLIAM O. OWEN.

To New Haven, Conn., as instructor, from Fort Leavenworth, Lieut.-Col. FERDINAND SCHMITTER. Major SYRUS B. WOOD. To organize and command a Yale Army Laboratory School, from Fort Leavenworth, Lieut.-Col. CHARLES F. CRAIG.

To Washington, D. C., for duty in the Surgeon-General's Office, from Fort Meyer, Lieut.-Col. SAMUEL J. MORRIS; from Mayo Clinic, Col. CHARLES H. MAYO.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Gordon, Atlanta, Ga., for duty, Lieuts. WILLIAM R. EIDSON, Enterprise; WALTER N. MOORE, Lisman.

To Camp Lee, Petersburg, Va., base hospital, from Camp Logan, Lieut. CARL A. HERRIS, Bessmer. For duty, from Fort Oglethorpe, Lieut. ROBERT H. SHEPHERD, Jasper.

To Camp McClellan, Anniston, Ala., base hospital, Lieuts. CLAUDE F. MYERS, NORMAN I. WOOD, Birmingham.

To Fort Monroe, Va., for temporary duty, Major CHARLES A. THIRPEN, Montgomery.

To Fort Oglethorpe for duty, from Fort Riley, Major HARRY T. LAY, Montgomery. For instruction, Capt. CHARLES P. MARTIN, Woodstock; Lieuts. HORACE A. LEYDEN, Anniston; ANDREW L. GASTON, Bayley; THOMAS H. DENNY, Wadley.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. CECIL D. GASTON, Birmingham.

To Richmond, Va., for duty, Capt. HAWKINS D. WESTMORELAND, Huntsville.

Honorably discharged on account of physical disability incurred in line of duty, Lieut. HARRY E. HALL, Florence.

The following order has been revoked: *To report by wire to the commanding general*, Southeastern Department, for assignment to duty, Lieut. MALCOLM D. SMITH, Prattsville.

Arizona

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Lieut. GEORGE C. SNYDER, Johnson.

To Fort Oglethorpe for instruction, from Fort Sill, Lieut. EARL R. McPHEETERS, Clifton.

To Fort Riley for instruction, from duty as a private, Lieut. JOSEPH W. KEMPFF, Fort Douglas.

Arkansas

To Camp Gordon, Atlanta, Ga., for duty, from Fort Riley, Lieut. BERT C. HINER, Evansville.

To Camp Sherman Chillicothe, Ohio, base hospital, from Fort Oglethorpe, Lieut. HENRY K. WADE, Hot Springs.

To Corpus Christi, Texas, for observation and treatment, from Camp MacArthur, Capt. ANTHONY C. THIELLIERE, Varner.

To Fort Riley for instruction, Lieuts. CLEVELAND B. HOLLABAUGH, Leslie; OLIVER C. STRUTHERS, Siloam Springs; JOHN C. HUGHES, Walnut Springs.

To Plattsburg Barracks, N. Y., for duty, from Army Medical School, Lieut. JACOB B. HESTERLY, Prescott.

California

To Camp Kearney, Linda Vista, Calif., base hospital, Capts. ERNEST L. COMMONS, GEORGE G. HUNTER, Los Angeles; PHILIP M. SAVAGE, San Bernardino; Lieuts. PERRY N. SIMS, Calexico; FLOYD L. R. BURKS, Fresno; GEORGE T. BOYD, Hollywood; EDWARD W. SEAFORTH, San Francisco; JOSEPH S. COCHRAN, WILLIAM F. PRIESTLEY, Stockton.

To Camp Lewis, American Lake, Wash., base hospital, Capts. ELBERT LeR. BIGGS, HOWARD W. SEAGAR, Los Angeles; CLARENCE L. SIX, Stockton; Lieuts. WALTER W. DAVIS, Brea; EDWARD S. DRUCHS, ALVA F. MAINE, Oakland.

To Camp Logan, Houston, Texas, base hospital, from San Francisco, Major HERMAN J. SCHLAGETER, San Francisco.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Lieut. WILLIAM J. MARNEY, Sebastopole.

To Fort Oglethorpe, base hospital, from Camp Dix, Capt. WAYLAND A. MORRISON, Los Angeles; from Fort Riley, Capt. ROBERT C. HOWE, San Francisco. For instruction, Capts. JOHN L. AVEY, Redlands; JAMES EAVES, San Francisco; Lieut. PHILLIP L. WISE, San Jose.

To Fort Riley for instruction, Capts. ALBERT W. MOORE, Los Angeles; GARTH PARKER, Salinas; JOSEPH W. PINE, Eureka; ARTHUR W. BUELL, Long Beach; MONTAGUE CLEEVES, EDWIN M. CLINTON, WILLIAM S. HARTFORD, JOHN H. TEBBETTS, Los Angeles; HARRY R. MITCHELL, Needles; CHARLES C. ROSS, San Francisco; JOHN L. BEATTIE, San Jose.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School*, for duty, Capt. THOMAS H. T. WIGHT, Santa Monica.

To San Francisco, Calif., for instruction and on completion *to Letterman General Hospital*, that place, for duty, Lieut. LLEWELLYN P. JOHNSON, Stockton. Letermann General Hospital, for duty, Capt. NEWTON T. ENLOE, Chico; Lieut. ROY N. FULLER, Tulara. On completion *to Canal Zone*, for duty, Capt. JOHN N. FORCE, Los Angeles.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. HARVEY P. CHARLES, Berkeley.

The following order has been revoked: *To Hoboken, N. J.*, for duty, from Fort Oglethorpe, Lieut. TRUSTEN M. HART, Los Angeles.

Canal Zone

To Camp Pike, Little Rock, Ark., base hospital, from the Surgeon-General's Office, Major WILLIAM McC. JAMES, Panama City.

Colorado

To Camp Cody, Deming, N. M., base hospital, Capt. BURGETT WOODCOCK, Greeley; Lieut. NORBERT H. KNOCH, Denver.

To Camp Devens, Ayer, Mass., base hospital, from New York City, Lieut. WM. A. McGUIGAN, Denver.

To Camp Grant, Rockford, Ill., base hospital, from Fort Sill, Major CLARENCE B. INGRAHAM, Denver.

To Camp MacArthur, Waco, Texas, base hospital, Lieut. CHARLES F. CONDON, Breckenridge. For duty, from Fort Riley, Lieut. LANNING E. LIKES, Lamar.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. JOHN G. WOLF, Pueblo.

To Fort Oglethorpe for instruction, Capts. CARBON GILLASPIE, Boulder; HENRY C. WILCOX, Lieut. LESLIE H. WADE, Denver; from Fort Riley, Lieut. VARDRY A. HUTTON, Florence.

To Fort Riley for instruction, Lieut. ELBERT S. WAYMIRE, Denver.

To New Haven, Conn., for duty, Lieut. EDGAR D. DOWNING, Woodman.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Capt. PHILIP HILLKOWITZ, Denver.

The following order has been revoked: *To Camp Cody*, Deming, N. M., base hospital, Lieut. NORBERT H. KNOCH, Denver.

Connecticut

To Camp A. A. Humphreys, Accotink, Va., base hospital, Capt. HEMAN A. TYLER, Hartford.

To Camp Hancock, Augusta, Ga., to examine the command for nervous and mental diseases, Lieut. GEORGE McM. MELVIN, Middleton.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Mayo Clinic, Lieut. GEORGE M. SMITH, Waterbury.

To Fort Oglethorpe for instruction, Lieuts. GALEM F. SCUDDER, Glastonbury; ELIOT S. COGSWELL, Hartford; ARTHUR J. St. LAWRENCE, New Haven; ARTHUR J. JOHNSON, Waterbury.

To Garden City, N. Y., for duty, from Mineola, Lieut. HARTWELL G. THOMPSON, Hartford; from San Antonio, Lieut. ARTHUR F. McDONALD, Waterbury.

To New Haven, Conn., for observation and treatment, Lieut. LEWIS G. BEARDSLEY, Wallingford.

To Newport News, Va., for duty, from Camp Sevier, Lieut. MARMADUKE H. DENSLOW, Marbledale.

To Rockefeller institute for instruction, and on completion *to Fort Oglethorpe* for instruction, Major JOSIAH M. SLEMONS, New Haven.

District of Columbia

To Camp Custer, Battle Creek, Mich., with the board examining the command for nervous and mental diseases, Lieut. BERNARD GLUECK, Washington.

To Camp Dix, Wrightstown, N. J., for duty, Lieut. FRANK D. ADAMS, Washington.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Major HENRY T. PRICE, Washington.

To Fort Oglethorpe for duty, from Fort Riley, Capt. LEONARD P. BELL, Washington. For instruction, Major CLARENCE M. DOLLMAN, Capt. HENRY C. COOK, LOUIS A. JOHNSON, Lieut. DANIEL B. MOFFETT, Washington.

To Hot Springs, N. C., for duty, from Washington, Major JOSEPH M. HELLER, Washington.

To New Haven, Conn., for duty, Lieut. JAMES L. ANDERSON, Washington.

To Newport News, Va., for temporary duty, Lieut. JOSEPH R. DARNALL, Washington.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Jackson, Columbia, S. C., base hospital, Lieut. SIMON R. KARPELES, Washington.

Florida

To Camp Jackson, Columbia, S. C., base hospital, Lieut. ROSCOE H. KNOWLTON, St. Petersburg.

To Camp Lee, Petersburg, Va., base hospital, from Camp Logan, Capt. FRANK F. FERRIS, Apalachicola.

To Camp Sheridan, Montgomery, Ala., for duty, Lieut. PARSONS M. GARCIA, West Tampa.

To Fort Oglethorpe for instruction, Lieut. ELLSWORTH C. BRUNNER, Miami.

To Lakewood, N. J., for duty, from Camp Wheeler, Capt. JULIAN E. CAMMON, Jacksonville.

Georgia

To Richmond, Va., for duty, Lieut. HENRY M. SMITH, Chattahoochee.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. LUCIUS LAMAR, Dawson.

To Camp Gordon, Atlanta, Ga., for duty, Lieut. GUY G. LUNSFORD, Weston.

To Camp Greene, Charlotte, N. C., base hospital, from Army Medical School, Lieut. SAMUEL LICHTENSTEIN, Augusta.

To Camp Lee, Petersburg, Va., base hospital, from Camp Jackson, Lieut. GEORGE H. LANG, Savannah.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. ERNEST CORN, Macon.

To Fort Slocum, N. Y., as orthopedic surgeon, from Camp Dix, Lieut. HENRY J. PEAVY, Byron.

To Hoboken, N. J., base hospital, from Camp Crane, Lieut. JOHN R. TURNER, Temple. For duty, Major RUFUS T. DORSEY, Atlanta; Capt. ROBERT B. RIDLEY, Decatur.

To Rockefeller Institute for instruction, and on completion *to Camp Jackson*, Columbia, S. C., base hospital, Capt. WILLIAM B. CRAWFORD, Savannah. For instruction in bacteriology, and on completion *to his proper station*, from Camp Joseph E. Johnston, Lieut. PAUL H. CHRISTIAN, Columbus.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. RICHARD BINION, Sparta.

Idaho

To Camp Leach, American University, Washington, D. C., for duty, from Fort Riley, Lieut. OWEN D. PLATT, St. Maries.

To Camp Lewis, American Lake, Wash., base hospital, Capt. ADRAM M. NEWTON, Peccatello.

To Fort Oglethorpe for duty, from Fort Riley, Capt. DONALD S. NUMBERS, Parma. For instruction, Capt. RICHARD E. SHURTZ, Boise.

To Fort Riley as sanitary inspector, from Fort Riley, Capt. WILLIAM H. TUKEY, Emmett. For instruction, Lieut. JOHN DIMON, Elk River.

To report by wire to the commanding general, Western Department, for assignment to duty, Lieut. EDWARD D. PIPER, Jerome.

Illinois

To Army Medical School for instruction, Lieuts. ARTHUR L. BEYERLEIN, Chicago; from Camp Wheeler, Lieut. CHARLES H. MANLOVE, Jr., Chicago.

To Baltimore, Md., Johns Hopkins University, for duty, from Biltmore, Major EVARTS A. GRAHAM, Chicago.

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieuts. CHARLES B. ALEXANDER, Chicago; HENRY M. BOIES, Strawn; from Camp Wheeler, Lieut. ALFRED A. WILLANDER, Rockford; from Fort Brady, Capt. CHARLES J. POOLE, Mt. Vernon; from Fort Oglethorpe, Capt. CORYDON DuK. BUNDY, Sadorus.

To Camp Gordon, Atlanta, Ga., for duty, from duty as a private, Lieut. ELI LEVIN, Chicago; from Fort Riley, Lieut. GWYN F. HAIG, LeRoy.

To Camp Grant, Rockford, Ill., base hospital, Lieuts. RAY M. POUTS, SAMUEL J. PEARLMAN, Chicago; from Fort Oglethorpe, Capt. FRENCH E. GARY, Chicago; from Fort Sill, Lieuts. ROY D. SHORT, Melrose Park; HOBART C. RUDDICK, Sandoval. For duty, from Fort Riley, Lieuts. LEON P. KOZAKIEWICZ, WILLIAM RUPP, Chicago.

To Camp Jackson, Columbia, S. C., base hospital, Capt. HORATIO N. BOSHELL, Melvin; Lieut. ERWIN F. DUDLEY, Sandwich; from Army Medical School, Capt. OSCAR T. SCHULTZ, Chicago; from Camp Sherman, Capt. JOHN W. EAREL, Quincy.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Logan, Capt. JOHN C. FOLEY, Waukegan. For duty, from Fort Oglethorpe, Lieut. RAYMOND J. JOSEPH, New Athens.

To Camp Lee, Petersburg, Va., base hospital, from Camp McClellan, Major CHARLES A. STEVENS, Chicago. For duty, Lieut. LOUIS A. LOEWENBERG, Chicago; from Fort Oglethorpe, Lieut. GEORGE M. SEGAL, Chicago.

To Camp MacArthur, Waco, Texas, base hospital, Capt. ARTHUR H. WEIS, Chicago.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. ALBERT N. MUELLER, Rock Island.

To Camp Meade, Admiral, Md., as assistant to the division surgeon, from Fort Riley, Lieut. EUGENE W. FISKE, Evanston.

To Camp Upton, L. I., N. Y., base hospital, from Camp MacArthur, Lieut. EDMUND DOUGLAS, Hillsboro. For duty, Lieut. HALLOCK B. WARREN, Breese.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. LESTER L. MILES, Wilmette; from Camp Dodge, Capts. GEORGE H. MILLER, IRVING PERRILL, Chicago. For duty, from Fort Oglethorpe, Lieut. CHARLES HIBBE, Springfield.

To Canal Zone, for duty, from Camp Grant, Lieut. WILLIAM H. GEHL, Chicago.

To Chicago, Ill., for instruction, Lieut. JOHN E. BENTLEY, Chicago.

To Fort McHenry, Md., for duty, from Fort Oglethorpe, Major SIDNEY STRAUSS, Chicago.

To Fort Oglethorpe, base hospital, from Camp Devens, Lieut. LOUIS H. HAYES, Alton. For duty, from Fort Riley, Majors ELLIS K. KERR, RALPH W. WEBSTER, CHARLES H. S. WILLIAMSON, Capts. MICHAEL L. GALLAGHER, HARRY S. NORTON, Lieut. ISAAC J. FRISCH, Chicago. For instruction, Capts. CHARLES S. AITKEN, GEORGE L. DAVENPORT, WILLIAM A. PORTER, Chicago; WILBERT F. McNARY, East St. Louis; ALBERT H. WALES, Lanark; JAY H. BACON, Peoria; ALBERT C. ASCHAUER, Springfield; CLYDE F. HORNER, Tuskiwa; Lieuts. GILBERT H. GALFORD, Bloomington; JAMES H. SMITH, Canton; LEAF C. KNIGHT, Carthage; CHESTER J. CHALLENGER, JOHN B. CIPRIANI, CLARENCE H. COURTNEY, YNGVE JORANSON, GEORGE M. LANDAU, MICHAEL F. McGUIRE, SIDNEY M. ROBERTS, NICHOLAS WOLMAN, Chicago; CHESTER M. TAYLOR, Decatur; PAUL R. RADGER, Kankakee; WILLIAM F. JUSTUS, Littleton; MARK H. TIBBETTS, Shirland; JOHN F. DEAL, Springfield; from Fort Riley, Lieut. HENRY S. BENNETT, Moline; from Fort Sill, Capt. HARRY A. WARE, Chicago. To examine the command for nervous and mental diseases, Capt. CHARLES B. CALDWELL, Peoria.

To Fort Riley for instruction, Capts. CHARLES S. DAVIS, Champaign; GEORGE F. JOHNSON, East Moline; WALTER BURGESS, Pana; WILLIAM A. HINCKLE, Peoria; HENRY F. DICE, Ridgefarm; HOWARD R. HESS, Tiskilwa; Lieuts. ORVILLE J. SLOAN, Chatsworth, PETER S. CLARK, ANTHONY C. FORMUSA, JOSEPH H. JOHNSON, Chicago; DAVID B. FREEMAN, Moline; JOSEPH M. DOWNES, Morrison; EMIL Z. LEVITIN, Peoria; GLEN R. INGRAM, Tuscola; DAW. LOOMIS, Warsaw.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Capt. WALTER G. BAIN, Springfield; Lieuts. FRED C. CALDWELL, Chicago; HENRY E. LUTYENS, Fernandale; HERMAN L. LE SAULNIER, Red Bud. For instruction in the treatment of infected wounds, and on completion *to New York City*, Bellevue Hospital, for further instruction, and on completion *to his proper station*, Capt. WILLIAM H. MALEY, Galesburg. On completion *to his proper station*, from Camp Lee, Lieut. EVERETT E. HOWARD, Rossville.

To Washington, D. C., for duty in the Surgeon-General's Office, from Fort Riley, Major FREDERICK R. GREEN, Chicago.

To the Philippines, from the Surgeon-General's Office, Majors ALBERT J. OSCHNER, DANIEL A. K. STEELE, Chicago.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. JOHN F. TAYLOR, Buda.

Resignation accepted, Lieut. RALPH B. SCOTT, Venice.

The following orders have been revoked: *To Fort Des Moines, Ia.*, base hospital, Capt. RUFUS W. BISHOP, Chicago. *To Williamsbridge, N. Y.*, for observation, treatment, and report, Capt. HART E. FISHER, Chicago.

Indiana

To report by wire to the commanding general, Central Department, for assignment to duty, Lieuts. JOSEPH F. GILLESPIE, Greencastle; CHARLES J. COOK, Indianapolis; PIERRE G. FERMIER, Leesburg.

To Rockefeller Institute for instruction in laboratory work, and on completion to Army Medical School for duty, from Camp Lee, Lieut. EDWIN M. KIME, Indianapolis.

To Washington, D. C., for duty, Lieut. WILLIAM A. HOLLIS, Hartford City.

To Camp Meade, Admiral, Md., base hospital, Capt. JOHN M. FOUTS, Richmond; Lieut. JOHN L. GLENDENING, Indianapolis.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. HERBERT L. BUCKLES, Hartford City.

To Camp Upton, L. I., N. Y., for duty, Lieut. SAMUEL A. SMOOTS, New Middletown.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. ARCHIE F. SCHULTZ, Lafayette.

To Fort Benjamin Harrison, base hospital, Capt. JOHN T. WHEELER, Indianapolis; Lieut. GEORGE B. HUNT, Richmond.

To Fort McPherson, Ga., for duty, from Camp Gordon, Capt. MERTON A. FARLOW, Milroy.

To Fort Oglethorpe for duty, from Fort Riley, Major MAURICE H. KREBS, Huntington. For instruction, Major EDWIN B. HUMPHREYS, Angola; Capts. JAMES B. YOUNG, Cumberland; SAMUEL W. HERVEY, Fortville; CHARLES M. GIBBS, Greenfield; JULIUS A. CHEVIGNY, Hammond; JOHN W. SHAFER, Lafayette; JOHN C. MARLIN, Williams; Lieuts. JOHN ARMINGTON Anderson; TERENCE DARNELLE, Ashley; CHARLES MARSHALL, Aurora; CHARLES H. SCHENK, Berne; FRED A. METTS, Bluffton; HARRY M. PELL, Brazil; PEARL R. BENNETT, Bridgeton; ALFRED B. COYNER, Chalmers; WILLIAM AMY, Corydon; EDWARD H. KUPKE, Evansville; SAMUEL PEARSON, EARL VAN REED, LaFayette; LUTHER H. RATLIFF, Lawrence; UTHIE R. WILSON, Lynnville; WILLARD B. ASHBY, Oakland City; SCHUYLER F. TEAFORD, Paoli; MARK M. MORAN, Portland; MERLE D. IRWIN, Rensselaer; from Fort Riley, Lieut. ROBERT C. SHANKLIN, South Bend.

To Hoboken, N. J., for duty, Lieut. FRANK H. MERVIS, Indiana Harbor.

To New Haven, Conn., for duty, Lieuts. EDWARD J. RICHSTEIN, Princeton; JOSHUA M. GORDON, South Bend. Yale Army Laboratory, for instruction in bacteriology, Lieut. FRANK P. HUNTER, La Fayette.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. HENRY C. BRAUCHLA, Indianapolis.

Iowa

To Camp Sevier, Greenville, S. C., base hospital, from Camp Beauregard, Lieut. ARLO R. ZUERCHER, Cedar Rapids.

To Camp Wheeler, Macon, Ga., as assistant to camp surgeon, from Fort Riley, Capt. HARRY R. REYNOLDS, Clinton.

To Camp A. A. Humphreys, Accotink, Va., base hospital, Lieut. EGBERT W. SPROULE, Peterson.

To Camp Bowie, Fort Worth, Texas, base hospital, Major WILLIAM JEPSON, Sioux City. For duty, from Fort Clark, Capt. WILLIAM M. WILDMAN, Fort Dodge.

To Camp Cody, Deming, N. M., base hospital, Capt. JOHN F. STUDEBAKER, Fort Dodge.

To Camp Custer, Allentown, Pa., for duty, from Fort Oglethorpe, Capts. NELSON McK. WHITEHILL, Boone; ERLE D. TOMPKINS, Clarion; Lieut. IRA J. GIBSON, Fontanelle.

To Fort Oglethorpe for duty, from Fort Riley, Major CLARENCE VAN EPPS, Iowa City; Capt. FRANCIS K. HOLBROOK, Des Moines; Lieut. KENNETH E. MONTGOMERY, Lawrenceville; WALTER E. DRAPER, Manilla. For instruction, Capts. HARRY N. McCALL, Clearfield; CHARLES A. KEARNEY, Dubuque; JOHN M. GARRETT, Fort Dodge; Lieuts. ARTHUR M. WASHBURN, Burlington; HERMAN VON LACKUM, Dysart; SUMMER R. CHASE, Fort Dodge; WILLIAM H. JOHNSTON, Muscatine; from Fort Riley, Lieuts. SIDNEY B. BELLINGER, Council Bluffs; ALEXANDER P. STEWART, Inwood.

To Fort Riley for instruction, Capts. CHARLES S. KENNEDY, Logan; SYLVESTER E. HINSHAW, Newton; RICHARD HIUSENGA, Rock Valley; Lieuts. FREDERICK H. RODEMEYER, Alex-

andria; LEO A. NELSON, Allerton; PAUL O. ANDERSON, Bouton; GEORGE H. STEINLE, Burlington; JAMES H. BRUCE, Dickins; RUPERT C. HERRICK, Gilmore City; JOHN B. WRIGHT, Knoxville; ROBERT S. SHANE, Pilot Mound; FRANK H. DIERKER, West Point; EDWIN R. WHEELER, Zwingle.

To Garden City, L. I., N. Y., for duty, from Fort Riley, Lieut. LONNIE A. COFFIN, Farmington.

To New Haven, Conn., Yale Army Laboratory School, as instructor, from Fort Leavenworth, Major GUTHRIE McCONNELL, Waterloo. For instruction in bacteriology, Lieut. MATTHEW T. MORTON, Estherville.

To Newport News, Va., for duty, from Fort Riley, Lieut. LONNIE A. COFFIN, Farmington.

To Otisville, N. Y., for temporary duty, from Camp Hancock, Capt. WILLIAM L. HEARST, Cedar Falls.

To Talmage, Calif., Mendocino Hospital, for intensive training, Lieut. HAROLD E. FARNSWORTH, Galva.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. LESLIE L. CARR, Clermont.

Kansas

To Camp Logan, Houston, Texas, base hospital, Major HENRY W. HORN, Wichita; Capt. LEROY W. BAXTER, Columbus; from Camp MacArthur, Lieut. ALEXANDER B. SCOTT, Bucklin.

To Camp MacArthur, Waco, Texas, for duty, Capt. JOHN H. RINEHART, Quinter; Lieut. WILLIAM H. UPDEGROVE, Pittsburg.

To McClellan, Anniston, Ala., base hospital, from Fort Riley, Lieut. EUGENE J. BRIBACH, Atchison.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. GEORGE S. ROBSON, Lieut. WILLIAM J. GATES, Kansas City.

To Fort Oglethorpe, for duty, from Fort Riley, Major JIRAH M. DOWNS, Ellsworth. For instruction, Capt. GEORGE A. LANDES, Parsons; Lieut. ENRY R. SCATES, Kansas City; OTTO J. DIXON, Mound Valley; CALTEN B. GRISSOM, Syracuse; from Fort Riley, Lieut. EVERETT W. JOHNSON, Coffeyville.

To Fort Riley for instruction, Capts. CLARENCE E. KINLEY, Fort Dodge; WILLIAM F. NIENSTADT, Hartford; Lieuts. HUGH M. BARNES, Blue Mound.

To New Haven, Conn., Yale Army Laboratory, for instruction in bacteriology, Lieut. CHAUNCEY A. McKINLAY, Wichita.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. JAMES WELCH, Herrington; WILLIAM S. GRISSELL, Ransom.

Kentucky

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. WALTER F. McCROCKLIN, Louisville.

To Camp Lee, Petersburg, Va., base hospital, from Camp Zachary Taylor, Lieut. CHARLES C. STIRLING, Jr., Louisville. For duty, Lieut. JOHN R. WEBB, Littrell.

To Camp Pike, Little Rock, Ark., to examine the command for nervous and mental diseases, Capt. WALLIS W. DURHAM, Crofton.

To Camp Sevier, Greenville, S. C., for duty, from Camp Dodge, Lieut. ELMORE B. BACKSMAN, Newport.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Custer, Capt. BENJAMIN F. ZIMMERMAN, Louisville; from Camp Lee, Lieut. CLIFFORD N. HEISEL, Covington; from Camp Sheridan, Lieut. MICHAEL J. HENRY, Louisville; from Camp Sherman, Capt. ELMER L. HENDERSON, Louisville; from Camp Zachcary Taylor, Capt. JOHN B. RICHARDSON, Louisville.

To Camp Sheridan, Montgomery, Ala., for duty, Lieut. CHARLES H. MOORE, Cannes.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Riley, Capt. GEORGE A. ROBERTSON, Louisville.

To Fort Riley for instruction, Lieut. ARTHUR D. DONNELLY, Bowling Green.

To Fort Thomas, Ky., for duty, from Camp Sherman, Capt. MEREDITH W. HYATT, Springfield.

To New York City, Bellevue Hospital, for instruction, and on completion to *Camp Gordon*, Atlanta, Ga., base hospital, Capt. ROBERT H. HEARNE, Paducah.

To Rockefeller Institute for instruction, and on completion *to Camp Meade*, Admiral, Md., base hospital, Lieut. JAMES W. MARTIN, La Centre. On completion to *Camp Sheridan*, Montgomery, Ala., base hospital, Capt. WILLIAM H. SMITH, Danville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. RODMAN H. WILLIAMS, New Hope.

Louisiana

To Camp Beauregard, Alexandria, La., from Jackson Barracks, Lieut. ARTHUR W. RHYNE, New Orleans.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. ALBERT S. COOPER, Mansfield.

To Camp Grant, Rockford, Ill., base hospital, from Fort Sill, Lieut. ALBERT C. JACKSON, New Orleans.

To Camp Greene, Charlotte, N. C., base hospital, Lieut. ARCHIBALD C. KAPPEL, Franklin.

To Camp Logan, Houston, Texas, base hospital, from Fort Bayard, Lieut. JOSEPH R. D'AUNCY, New Orleans.

To Camp MacArthur, Waco, Texas, for duty, Lieut. WILLIAM N. HANKINS, Derry.

To Camp Sevier, Greenville, S. C., base hospital, from Camp MacArthur, Lieut. GEORGE M. JONES, New Orleans.

To Fort Oglethorpe for duty, from Fort Riley, Lieut. HARRY JENKINS, Churchpoint. For instruction, Capts. ANATOLE R. TRAHAM, Lafayette; STUART L. WHITE, Ruston; Lieut. FRED HAMILTON, Jena.

To Fort Riley for instruction, Lieut. CLAUDE E. BORDENAVE, New Orleans.

To Washington, D. C., for duty in the Surgeon-General's Office, from New Orleans, Major ISADORE DYER, New Orleans.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. ABRAHAM MATTES, New Orleans.

Maine

To Camp Wadsworth, Spartanburg, S. C., to examine the command for nervous and mental diseases, from Camp MacArthur, Major FRANK E. LESLIE, Andover.

To Fort Oglethorpe for instruction, Capt. LEWIS L. MANN, Augusta, Lieut. JOHN B. FOSTER, Farmington.

To Williamsbridge, N. Y., for duty, Lieut. ROLAND L. McKAY, Augusta.

Maryland

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. HENRY S. MITCHELL, Oakland.

To Camp Cody, Deming, N. M., for temporary duty, from Camp Lee, Lieut. THOMAS M. RIVERS, Baltimore.

To Camp Gettysburg, Pa., for duty, from Fort Oglethorpe, Lieut. HAROLD W. SHUTTER, Baltimore.

To Camp Custer, Battle Creek, Mich., with the board examining the command for nervous and mental diseases, from Fort Oglethorpe, Lieut. WILLIAM C. CHANEY, Chaney.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Jackson, Lieut. GEORGE R. WILKINSON, Baltimore.

To Camp Lee, Petersburg, Va., for duty, Lieut. WILLIAM H. HOUSTON, Fishing Creek.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Sheridan*, Montgomery, Ala., base hospital, Capt. GEORGE M. LINTHICUM, Baltimore.

To Rockefeller Institute for instruction in chemistry and bacteriology, and on completion *to Army Medical School*, for instruction, Lieut. RALPH E. MYERS, Carroll Park.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. HORACE McM. BANKS, Baltimore.

The following order has been revoked: *To Fort McPherson, Ga.*, for temporary duty, Capt. JAMES M. H. ROWLAND, Baltimore.

Massachusetts

To Camp Hancock, Augusta, Ga., for duty, from Camp Sevier, Capt. FRANK E. STETSON, New Bedford.

To Camp Lee, Petersburg, Va., for duty, Capt. JOSEPH S. LEBOEUF, Fall River; from Camp Meade, Lieut. MARTIN W. PECK, Marblehead; from Fort Oglethorpe, Lieut. MILES M. HAMBURG, Waltham.

To Camp Upton, L. I., N. Y., base hospital, Lieut. EDWARD I. TABOR, Lowell. For duty, Lieut. MORRIS F. KAUFMAN, Norwood.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Hancock, Lieut. DAVID W. HOUSTON, Jr., Boston.

To Fort Oglethorpe, base hospital, from Camp Devens, Major FRANKLIN G. BALCH, Lenox; Capts. NEIL A. POGG, HORACE K. SOWLES, Boston; from Camp McClellan, Lieuts. KENNETH L. WOLF, THOMAS H. LANMAN, Boston; from Camp Wadsworth, Capt. JAMES B. TORBERT, Boston. For instruction, Capts. JESHUA W. CLARKE, Middleboro; CHARLES B. DARLING, Boston; GEORGE A. GRIEUMARD, Fitchburg; GEORGE A. COOKE, Montague; JESSE H. LIBBY, Weymouth; GEORGE H. HILL, Worcester; Lieuts. MAURICE A. GILBERT, SAMUEL L. MARNOY, Chelsea; LORNE W. HARRIS, Chelsea; EDWIN P. RUGGLES, Dorchester; AUSTIN E. ST. CLAIR, Framingham; EDWARD J. SAWYER, Gardner; DAVID A. GARBELNICK, Haverhill; FRANCIS A. O'SULLIVAN, Lowell; HAROLD E. DIEHL, Quincy; CHARLES C. PARKER, Jr., Roxbury; JOHN M. GILCHRIST, NEWUTHER HOLDEN, Springfield; GEORGE C. ANTHONY, Wellesley, ROBERT E. MERRITT, Wollaston.

To Hoboken, N. J., base hospital, from Walter Reed General Hospital, Lieut. GEORGE L. CURRAN, North Adams.

To New Haven, Conn., for duty, Lieut. NATHANIEL J. HEYWOOD, Williamsett; Yale Laboratory School, for instruction in bacteriology, Lieut. GEORGE L. BUNNELL, Foxboro.

To New York City, Bellevue Hospital, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, Capt. STANLEY C. COX, Holyoke. On completion *to Camp Sevier*, Greenville, S. C., base hospital, Lieut. CECIL N. BRADY, Newton.

Michigan

To Camp Bowie, Fort Worth, Texas, base hospital, from Fort Riley, Major PETER D. MACNAUGHTON, Calumet.

To Camp Custer, Battle Creek, Mich., as sanitary inspector, from Camp Custer, Major ROLLIN C. WINSLOW, Sault Ste Marie. Base hospital, Capt. ROY T. URQUHART, Grand Rapids.

To Camp Devens, Ayer, Mass., base hospital, from New York, Capt. MATTHEW KOLLIG, Saginaw.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Riley, Lieut. EDWARD GOODWIN, Bay City.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. FREDERIC C. WARNSHUIS, Grand Rapids.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp MacArthur, Capt. JOHN B. BLAND, Adrian.

To Fort Oglethorpe for duty, from Fort Riley, Major WILLIAM N. KENZIE, Richland; Capt. OTIS B. MALLOW, Detroit. For instruction, Capts. RUDOLPH J. E. ODEN, Cadillac; CLARENCE D. CHAPIN, Columbiaville; JULIUS F. PEPPLER, Grand Rapids; Lieuts. ALBERT T. KANT, JOHN D. MONROE, Detroit; THEODORE P. VANDER ZALM, Grand Haven; RUDOLPH B. MILLER, Harbor Springs; DON C. McCOWAN, Mecosta; FRANK W. HANNUM, Muskegon; from Camp Custer, Lieut. ROLAND S. CRON, Ann Arbor.

Minnesota

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Capt. JENNER P. CHANCE, International Falls.

To Camp Cody, Deming, N. M., for temporary duty, from Hoboken, Capt. FRANCIS G. BLAKE, Minneapolis.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. HENRY B. GRIMES, Madelia; Lieut. GERALD C. ROSKILLY, Deer Creek.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Capt. THOMAS EDWIN FLINN, Redwood Falls.

To Camp Grant, Rockford, Ill., for duty, Lieuts. OSCAR E. NELSON, Minneapolis; DALE D. TURNCLIFF, St. Paul.

To Camp Greene, Charlotte, N. C., base hospital, Capt. WINSLOW C. CHAMBERS, Blue Earth; Lieut. BERNARD S. BOHLING, Sandstone.

To Fort Oglethorpe for instruction, Major ALEXANDER R. COLVIN, St. Paul; Capts. FREDERICK H. ROLLINS, St. Charles; THOMAS J. MALONEY, St. Paul; Lieut. GUSTAV. T. NORDIN, Minneapolis; from Fort Riley, Lieuts. ERNEST W. COWERN, EDWARD SCHONS, St. Paul; SETH E. GILKEY, Watson.

To Fort Ontario, N. Y., base hospital, from Camp Kearney, Capt. HUGH S. WILLSON, Minneapolis.

To Fort Riley for instruction, Capts. MARION M. HURSH, Grand Rapids; CHARLES E. FAWCETT, Stewartsville; Lieuts. WILLIAM J. KUCERA, Hutchinson; GUSTAV M. HELLAND, Spring Grove.

To Matuchen, N. J., for duty, from Fort Oglethorpe, Lieut. THOMAS J. TRUTNA, Silver Lake.

To New Haven, Conn., for duty, Capt. ROBERT I. HUBERT, St. Paul.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School*, for duty, from Fort Snelling, Lieut. WILLIAM J. CARSON, St. Paul.

To Washington, D. C., for temporary duty in the Surgeon-General's Office, Capt. ARTHUR S. HAMILTON, Minneapolis. St. Elizabeth's Hospital, for intensive training, Lieut. WALTER B. MARTIN, Fergus Falls.

Resignation of Lieut. THEODOR BRATRUD, Warren, accepted.

Mississippi

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Oglethorpe, Capt. INMAN W. COOPER, Jr., Meridian.

To Fort Oglethorpe, base hospital, from Camp Dix, Lieut. EMILE O. WITHERS, Michigan City. For instruction, Capts. HENRY L. FLAKE, Meridian; JAMES B. MAGEE, Prentiss; Lieuts. DANIEL C. MONTGOMERY, Greenville; PERN CHAMPENOIS, Hattiesburg; HUGH Z. BROWNE, Kosciusko; HUGH D. GAYDEN, Leland; WILLIAM C. NORRIS, Quitman; MORRIS J. ALEXANDER, Tunica.

To Hoboken, N. J., base hospital, from Camp Sevier, Lieut. KUTCHEN T. KLEIN, Meridian.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Fort Sill, Lieut. JOSEPH T. IRBY, Enterprise.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. JOSEPH D. SAULS, Clarksdale.

Missouri

To New Haven, Conn., for duty, Lieut. ERNEST J. BUTZKE, Bowling Green.

To New York City, Hospital for Ruptured and Crippled, for instruction, from Fort Oglethorpe, Lieut. WILLIAM C. VERNON, Kansas City.

To report by wire to the commanding general, Central Department, for assignment to duty, Capts. WILLIAM P. DYSART, Columbia; GEORGE E. CECIL, Flat River; FRANK BOOGHER, JOSEPH L. MEREDITH, St. Louis; Lieuts. ARTHUR J. DECKER, Gray Ridge; EDMUND L. HARRISON, STEPHEN H. RAGAN, FRANKLIN F. SHARON, Kansas City; WELLMAN F. CHAFFIN, Raymore; DAVID N. DABBS, Rocky Comfort; WILLIAM J. BILLETER, Bynumville.

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, Lieut. AHBRUM M. GOLDMAN, Kansas City.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieuts. CHARLES HAHN, Dunnigan; WILLIAM T. DEAN, St. Louis; FLOYD B. RICKETTS, Union.

To Camp Logan, Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. GEORGE A. TELFER, St. Louis.

To Camp MacArthur, Waco, Texas, base hospital, Capt. FRANKLIN E. JACOBI, St. Louis. For duty, Capts. WALTER R. CARY, FREDERICK T. VAN EMAN, Kansas City; Lieuts. GEORGE T. TWYMAN, Independence; AMBROSE E. POTTER, Springfield.

To Camp McClellan, Anniston, Ala., base hospital, Capt. JAMES L. ROBERTS, Kansas City; Lieut. BOHUMIL J. WIESNER, St. Louis.

To Camp Meade, Admiral, Md., base hospital, Capt. FREDERICK C. ESSELBRUEGGE, St. Louis.

To Camp Pike, Little Rock, Ark., with the board examining the command for nervous and mental diseases, Lieut. THOMAS N. TOOMEY, St. Louis.

To Camp Sheridan, Montgomery, Ala., as orthopedic surgeon, from Lakewood, Capt. GREENE D. McCALL, Fulton.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Capt. THOMAS C. RICHARDS, Fayette.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capts. JOHN D. PORTERFIELD, Cape Girardeau; ARTHUR R. TIMERMAN, St. Joseph; Lieuts. WERNER H. WAGNER, Berger; JAMES F. CLANCY, St. Louis.

To Camp Upton, L. I., N. Y., for duty, from Fort Riley, Lieut. ALLEN G. SCOTT, Cardwell.

To Dallas, Texas, Signal Corps Aviation School, for duty, from Kansas City, Lieut. SAM. E. ROBERTS, Kansas City.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. FRANK McC. POSTLETHWAITE, Kansas City.

To Fort Oglethorpe for duty, from Fort Oglethorpe, Major WILLIAM L. McBRIDE, Kansas City. For instruction, Capts. CHARLES C. SIMMON, Bunker; CLARENCE S. CAPELL, CLYDE O. DONALSON, ROBERT N. MORRIS, CLINTON C. RHODES, Kansas City; Lieuts. WILLIAM B. LEVENS, Creighton; CLINTON C. KLEINSCHMIDT, JOHN O'CONNELL, FREDERICK C. SCHWARTZ, ANTHONY O. YOUNG, St. Louis.

To Fort Ontario, N. Y., base hospital, from Camp MacArthur, Lieut. MERRILL N. SMITH, Fayette.

To Fort Riley for instruction, Capts. GLOVER F. ALTON, Gashland; ERNEST C. CARPENTER, Helena; CHARLES C. DRACE, Holcomb; JOSEPH C. BEATTY, Huntingdale; IRWIN E. KUHL, Kansas City; WILL K. STATLER, Oakridge; EDWIN F. JAMES, Springfield; FRED H. LADD, St. Joseph; EDWARD H. EYERMAN, St. Louis; Lieuts. RICHARD G. HEREFORD, Ashley; TERRENCE P. GRADY, Bevier; WILLIAM L. ABNEY, Macon; JOHN C. OTTMAN, Craig; JOSEPH H. STAPP, Hardin; JOHN A. CHENOWETH, Joplin; WILLIAM F. BYLER, CHESTER M. COUNSELL, GEORGE A. RUSH, ABRAHAM WEINBERG, Kansas City; ROBIN J. GUY, Paynesville; TYRE H. HALE, LEWIS E. MISSIMORE, ALBERT A. MULACH, NATHANIEL N. YAHLEN, St. Louis; ROBERT J. JENNINGS, Windsor.

To Fort Sheridan, Ill., as orthopedic surgeon, from Fort Slocum, Lieut. EDWARD L. COOLEY, St. Louis.

To Garden City, L. I., N. Y., for duty, from Dallas, Lieut. JOSEPH J. REILLY, St. Louis; from Fort Oglethorpe, Lieut. FRANCIS H. J. OSBORNE, St. Louis.

To Hoboken, N. J., base hospital, from Camp Crane, Capt. JOHN A. POWERS, Warrensburg.

To Williamsbridge, N. Y., for duty, Lieuts. CHARLES A. ORR, Ash Grove; JAMES A. FARRELL, St. Louis.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. EDWARD FORD, Bloomfield.

Resignations of Lieuts. DAVID N. DUBBS, Rocky Comfort; FENTON N. GOODSON, St. Joseph, and ALBERT A. GEBHARDT, St. Louis, accepted.

Montana

To Camp Colt, Gettysburg, Pa., for duty, from Camp Wadsworth, Lieut. ALBERT A. PASTENE, Chester.

To Camp Fremont, Palo Alto, Calif., for duty, Capt. EDWIN C. ANDERSON, Missoula.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Dodge, Major THOMAS C. WITHERSPOON, Lieut. HAROLD SCHWARTZ, Butte.

To Fort Douglas, Utah, for duty, Lieut. LOREN G. SHROAT, White Sulphur Springs.

To Fort Oglethorpe for instruction, Capt. ALLEN G. FULLER, Missoula.

To Fort Riley for instruction, Lieuts. BENJAMIN I. TOWNSEND, Crow Agency; CORTLANDT W. DAWE, Great Falls; LAWRENCE STEVENS, Laurel.

To Mount Clemens, Mich., Signal Corps Aviation School, for duty, from Camp Kelly, Lieut. WEAVER B. ROGERS, White Sulphur Springs.

To Whipple Barracks, Ariz., for duty, Capt. LOUIS H. FALES, Stevensville.

The following order has been revoked: *To Camp Dix*, Wrightstown, N. J., base hospital, Lieut. THOMAS B. SCOTT, Butte.

Nebraska

To Camp Beauregard, Alexandria, La., base hospital, Capt. WASHINGTON I. DEVERS, Upland. For duty, from Fort Riley, Lieut. HENRY B. BOYDEN, Grand Rapids.

To Camp Cody, Deming, N. M., base hospital, Lieut. LEO J. KILLIAN, Blair. To examine the command for nervous and mental diseases from Camp Bowie, Capt. HARRY R. CARSON, Norfolk.

To Camp Grant, Rockford, Ill., base hospital, for observation and treatment, Lieut. IRWIN LIMBURG, Walthill.

To Camp Las Casas, San Juan, P. R., base hospital, from Camp Greene, Capt. JUDD A. STRONG, Kearney.

To Fort Oglethorpe for duty, from Fort Riley, Majors ELMER S. TENNEY, Lincoln; HAROLD E. EGGERS, Omaha. For instruction, Capts. ROYAL WOODS, Raider; ROY P. STOOPS, Scottsbluff; Lieuts. FRANK W. PLEHN, Scottsbluff; POLK RICHARDS, Winnebago; from Fort Sill, Capt. ELMER R. PORTER, Omaha.

To Fort Riley for instruction, Capts. CLAUDE B. CALBREATH, Hastings; ERSKINE M. BARNES, Omaha; FREDERICK H. KUEGLE, West Point; Lieuts. FREDERICK G. KOLOUGH, Schuyler.

The following orders have been revoked: *To Camp Custer*, Battle Creek, Mich., for duty, Capt. GEORGE H. BRASH, Bestrice. To report by wire to the commanding general, Central Department, for duty, Lieut. JOSEPH H. BOYES, Hebron.

Nevada

To Camp Fremont, Palo Alto, Calif., for duty, Lieut. JOHN R. MASTERSON, Tonopah.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Bowie, Lieut. JOHN C. KITCHEN, Mina.

To Camp Kearney, Linda Vista, Calif., base hospital, Capt. EUGENE E. SMITH, Lovelock.

New Hampshire

To Camp Devens, Ayer, Mass., for duty, from Vancouver, Capt. CHARLES A. STURTEVANT, Manchester.

To Camp Las Casas, San Juan, P. R., base hospital, from Camp Jackson, Lieut. PHILIAS A. PION, Concord; from Camp Lee, Lieut. JOHN C. ECKHARDT, Sanbornville.

To Fort Oglethorpe base hospital, from Fort Logan H. Roots, Lieut. GEORGE F. DWINELL, Manchester. For instruction, Capts. HIRAM L. JOHNSON, Franconia; CHARLES F. NUTTER, Nashua; Lieut. ANTHONY D. VANVAS, Manchester.

To New Haven, Conn., Yale Laboratory School, for instruction in bacteriology, Lieut. ROLAND J. BENNETT, Dover.

To San Francisco, Calif., Letterman General Hospital, for duty, Major SAMUEL ROBINSON, Walpole.

Honorably discharged, Capt. ARSENE LAVALLET, Berlin.

The following order has been revoked: *To Camp Jackson*, Columbia, S. C., base hospital, from Fort Oglethorpe, Capt. NOEL E. GUILLET, Manchester.

New Jersey

To Camp Las Casas, San Juan, P. R., base hospital, from Camp Lee, Lieut. DAVID BERNER, Atlantic City.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. HARRY G. THIGPEN, Atlantic City.

To Camp Sheridan, Montgomery, Ala., to examine the troops for tuberculosis, from Camp Joseph E. Johnston, Lieut. SAMUEL BARIMAN, Jersey City.

To Camp Upton, L. I., N. Y., base hospital, Capt. HOWARD S. FORMAN, Jersey City.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Dix, Lieut. SIDNEY C. LEVINE, Paterson.

To Fort Benjamin Harrison, base hospital, from Army Medical School, Lieut. EDMUND W. ILL, Newark.

To Fort McHenry, Md., base hospital, from Camp Dix, Lieut. GEORGE P. MEYER, Camden.

To Fort Oglethorpe, base hospital, from Camp Dix, Major J. SCHLICHTER, Elizabeth; from Fort Riley, Capt. JEREMIAH B. WINTERSTEEN, Moorestown. For instruction, Capts. CHARLES L. BOSSERT, Atlantic City; PERRY B. PRESTON, Newark; ROBERT E. ARMSTRONG, Passaic; NORMAN W. CURRIE, Plainfield; Lieuts. BENJAMIN BOROW, Camden; RICHARD B. ERNEST, Jr., Salem; from Camp Hancock, Capt. JOHN A. FREESE, East Orange.

To Garden City, L. I., N. Y., for duty, from Fort Oglethorpe, Lieut. ABRAHAM OCKENE, West Hoboken.

To Hoboken, N. J., for duty, Lieut. CHARLES F. RATHGEBER, East Orange; from Camp Crane, Capt. HAROLD G. WALKER, Wyckoff.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. FRANK L. MARTINE, Newark.

To Richmond, Va., for duty, Lieut. JAMES P. SCHUREMAN, New Brunswick.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. GIOVANNI PASANO, Newark. On completion *to his proper station*, from Camp Custer, Lieut. ABRAHAM J. NEWMAN, Jersey. For instruction in the treatment of infected wounds, and on completion *to Camp McClellan*, Anniston, Ala., base hospital, Lieut. DAVID P. BROWN, Bordentown.

New Mexico

To Camp Cody, Deming, N. M., base hospital, Lieut. WILLIAM C. WEBER, La Plata.

To Camp McClellan, Anniston, Ala., for duty, from Fort Riley, Lieut. WILLIAM C. MATTHEWS, Roswell.

To Camp Sheridan, Montgomery, Ala., as assistant to the division surgeon, from Fort Riley, Lieut. GEORGE W. SAMMONS, Farmington.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Lieut. LEWIS K. ROBINSON, Pinos Altos.

To Del Rio, Texas, camp hospital, Capt. SYLVESTER G. VON ALMEN, Roswell.

To report by wire to the commanding general, Southern Department, for assignment to duty, Lieut. WILLIAM M. SHERIDAN, Albuquerque.

New York

To Camp Bowmont, Alexandria, La., base hospital, Capt. MICHAEL OSATE, New York. For duty, from Fort L. H. Roots, Capt. WILLIAM C. CAUBLE, Brooklyn.

To Camp Devens, Ayer, Mass., base hospital, from Camp Meade, Lieut. ETHELBERT A. CALLAGHAN, Brooklyn. For duty, from Camp Dodge, Lieut. DAVID R. MELEN, Rochester; from Camp Upton, Capt. EDWARD RILEY, Lieuts. SAMUEL K. LEVY, TOM LOWRY, SAMUEL STRUMWASSER, New York. With the board examining the command for nervous and mental diseases, Lieut. WILLIAM C. SANDY, Shaldrake Springs.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. WILLIAM F. McTAGUE, New York. For duty, from Fort Oglethorpe, Lieuts. FRAIS M. KUJAWA, Buffalo; SIMON MENCHER, New York.

To Americus, Ga., Signal Corps Aviation School, as flight surgeon, from Mineola, Lieut. WILLIAM B. WHITE, New York.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. JOHN W. WURTHMANN, New York City. To examine the command for nervous and mental diseases, Capt. GORDON PRIESTMAN, Willard.

To Camp Jackson, Columbia, S. C., base hospital, Capt. ERNEST J. WILCOX, Pleasantville; from Camp Pike, Lieut. EPHRAIM M. BLUESTONE, New York.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Jackson, Lieut. HORACE E. ROBINSON, Pleasantville.

To Camp Lee, Petersburg, Va., base hospital, from Baltimore, Lieut. FREDERIC D. ZEMAN, New York; from Camp Dix, Capt. ROYALE B. FOWLER, Brooklyn; HARRY F. MENCHEN, Long Island; from Camp McClellan, Lieut. FRED BAW. EASTMAN, New York; from Camp Shelby, Capt. ROBERT H. FOWLER, New York; from Fort Riley, Major BERNARD S. OPPENHEIMER, New York. For duty, Capt. ABRAHAM L. CARDOZO, Brooklyn; Lieut. CLAYTON M. AXTELL, Deposit.

To Camp Meade, Admiral, Md., base hospital, Capt. ROLAND G. HOLT, Schenectady; from Camp Shelby, Capt. ABRAHAM ZINGHER, New York. With the board examining the troops for cardiovascular diseases, Capt. THEODORE BARINGER, New York.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Lieut. WILLIAM W. DICKEY, New York. With the board examining the command for nervous and mental diseases, Lieut. GEORGE R. STALTER, Troy.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Camp Sherman, Lieut. HOWELL E. BABCOCK, Brooklyn.

To Camp Upton, L. I., N. Y., base hospital, Capt. GEORGE W. ANGLIN, Rochester; Lieut. SOLOMON HIRSCH, New York; JEREMIAH J. MORAN, Rochester; from Hoboken, Major DAVID BOVAIRD, New York. For duty, Lieut. JOSEPH J. McNAMARA, Waverly. With the board examining the command for nervous and mental diseases, Lieut. WALTER A. SCHMITZ, Middletown.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Walter Reed General Hospital, Capt. JAMES P. FISKE, New York.

To Canal Zone for duty, from Camp Sevier, Lieut. LEO EDELMAN, New York.

Columbus Barracks, Ohio, for temporary duty, Lieut. ROLLIN VAN H. HADLEY, Collins.

To Fort Des Moines, Iowa, base hospital, from Fort Riley, Major MARTIN B. TINKER, Ithaca.

To Fort McHenry, Md., base hospital, from Camp Dix, Capt. HENRY W. JACKSON, New York.

To Fort Jay, N. Y., for duty, Capt. AMOS T. BAKER, Elmhurst.

To Fort Oglethorpe, as instructor, from Fort Riley, Capt. FREDERICK H. SPENCER, Waverly; Lieut. GEORGE J. CULVER, Au Sable Forks; *to Hospital*, from Rockefeller, Capt. ALBERT J. SCHOLL, Ja., New York. For duty, Lieut. MORTON E. BROWNELL, Oneonta; from Fort Riley, Major NATHANIEL F. BREED, Douglaston. For instruction, Capts. ROBERT T. BRIGGS, Brooklyn; JAMES H. DEWEES, Buffalo; JAMES M. HACKETT, Champlain; JAMES B. CROMLEY, JACOB C. FISK, JAMES J. S. WALSH, New York; GEORGE H. PEDDLE, Perry; JOSEPH B. KNIPE, Sparkhill; ALEXANDER F. WRIGHT, Wayne; Lieut. ROBERT M. ANDREWS, Bergen; NATHANIEL S. CARLISLE, WALTER O'CONNELL, Brooklyn; HOBART S. VAN NOSTRAND, Little Neck; FRANK BRANCATO, HARRY KATZ, ELIAS RAPOPORT, EARL E. VANDERWERKER, ROSCOE S. VAN PELT, New York; SIDNEY C. VERMILYA, Pennbrooke; DAVID M. ATWATER, Rochester; WILLARD E. WHEELOCK, Rockville Center; ARNOLD B. KAUFFMAN, Syracuse; from Akron, Ohio, Lieut. CHARLES GOTTLIEB, New York; from Biltmore, Lieut. ARCHIE E. GORDIN, New York; from Fort Sill, Lieut. THOMAS F. BERBEROVICH, New York.

To Garden City, L. I., N. Y., for duty, Lieut. RAYMOND D. HENDERSON, New Brighton; from Fort Oglethorpe, Lieut. ROBERT BAILIN, Brooklyn; from San Antonio, Lieut. SAMUEL ROTH, New York.

To Hoboken, N. J., base hospital, from Army Medical School, Capt. EUGENE F. CONNALLY, Troy; from Lakewood, Lieut. GUSTAVE A. BRAUN, Brooklyn. For duty, from Williamsbridge, Major MENUS S. GREGORY, New York.

To Lakewood, N. J., for duty, Capt. FREDERICK M. ALLEN, New York.

To Richmond, Va., for duty, from Camp Greene, Capt. GORDON T. GRAHAM, Rochester.

To Rockefeller Institute for instruction, and on completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. ALBERT W. BECK, Brooklyn. On completion *to Camp Upton, L. I., N. Y.*, base hospital, Lieut. DANIEL J. DALY, New York. For instruction in bacteriology, and on completion *to Army Medical School*, for duty, Lieuts. GEORGE G. DAVIS, Arcade; MURRAY L. BRANDT, Bronx; JAMES L. MANGANO, HAROLD A. PATTERSON, Buffalo; RONALD M. PERRY, New York. For instruction in the treatment of infected wounds, and on completion *to Camp Lee*, Petersburg, Va., base hospital, Lieut. J. LOUIS PRESTON, Canisteo. On completion *to Camp Shelby*, Hattiesburg, Miss., base hospital, Capt. FLOYD PALMER, Glen Falls. On completion *to Camp Sheridan*, Montgomery, Ala., base hospital, Capt. WILLIAM R. THOMSON, Warsaw.

To San Antonio, Texas, United States Army School, as flight surgeon, from duty as a contract surgeon, Capt. DAVID H. WEBSTER, New York.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, Major HENRY C. HADEN, Saratoga Springs; from Camp Jackson, Lieut. FRANK G. WALZ, Buffalo.

Honorably discharged, Major JOHN P. FABER, Schenectady. On account of physical disability existing prior to entrance into the service, Lieut. FLOYD H. MOORE, Herkimer.

The following order has been revoked: *To Camp Jackson*, Columbia, S. C., base hospital, Lieut. EDWARD L. FROST, Buffalo.

North Carolina

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieuts. ARTHUR E. GOUGE, Bakersville; HOWLAND McN. LANCASTER, Dobson.

To Camp Lee, Petersburg, Va., for duty, Lieut. ALBERT G. HORTON, Zebulon.

To Camp Meade, Admiral, Md., with the board examining the command for tuberculosis, from Camp Gordon, Capt. THOMPSON FRAZER, Asheville.

To Camp Sheridan, Montgomery, Ala., for duty, Lieut. NORMAN G. WILLIAMS, Franklin.

To Fort Oglethorpe for instruction, Capts. MICHAEL J. COSTELLO, Asheville; McLAIN ROGERS, Clyde; CLAUDE O. ABERNETHY, Raleigh; Lieuts. ARTHUR G. BOYER, Asheville; CHARLES F. STROSNIDER, Goldsboro; KEMP P. NEAL, Monroe; from Camp Mills, Lieut. JOHN B. LaGWIN, Wilmington.

To Raleigh, N. C., State Board of Health, as epidemiologist, from Fort Sam Houston, Major CHARLES O'H. LAUGHINGHOUSE, Greenville.

The following order has been revoked: *To Army Medical School* for instruction, Lieut. FRANK H. GARRISS, Lewiston.

North Dakota

To Camp Dodge, Des Moines, Iowa, base hospital, Capt. ALBERT M. FISHER, Bismarck.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Capt. JAMES E. CRAMMOND, Rugby.

To Fort Oglethorpe, for instruction, Lieut. LAWRENCE F. FISHER, Dickinson; from Fort Riley, Lieut. ARTHUR PEAKE, Grand Forks.

Ohio

To Fort Sam Houston, Texas, for duty, from Camp Travis, Major FRANK E. HUNTER, Cleveland.

To Memphis, Tenn., Signal Corps Aviation School, for duty, from Mineola, Lieut. WILLIAM W. SAUER, Marietta. *To Mineola, L. I., N. Y.*, Hazelhurst Field, for duty, from Camp Hancock, Capt. PERCY W. COBB, Cleveland.

To Camp Bowmont, Alexandria, La., for duty, from Fort Riley, Lieut. LARRY E. GALE, Newport.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. WALTER CARY, Toledo.

To Camp Cody, Deming, N. M., for temporary duty, from Army Medical School, Major ALLEN W. FREEMAN, Columbus.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. ALVA E. SNYDER, Bryan.

To Camp Devens, Ayer, Mass., as sanitary inspector, from Camp Abraham Eustis, Capt. JAMES M. DAY, Waynesfield.

To Camp Dix, Wrightstown, N. J., for duty, Capt. ARTHUR L. JONES, Lima; Lieuts. HAROLD FEIL, Cleveland; ANDREW B. WILKIE, Oxford.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. EDGAR T. KNOOP, Cincinnati.

To Camp Grant, Rockford, Ill., base hospital, Capt. LAWRENCE C. GROSH, Toledo.

To Camp Upton, L. I., N. Y. base hospital, Capt. CHARLES F. TENNEY, Toledo; Lieut. JESSE B. SAMPSELL, Van Wert. For duty, Lieuts. ALVIN J. DRACK, Cleveland; JAMES S. COUDEN, Morrow.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Dodge, Lieut. ARTHUR A. MILLER, Amherst. For duty, from Fort Oglethorpe, Lieut. GEORGE O. HOSKINS, Columbus.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Oglethorpe, Capt. FRANK S. GIBSON, Cleveland.

To Fort Oglethorpe for duty, Major SIMON P. KRAMER, Cincinnati; from Fort Riley, Capts. ROY A. BRINTNALL, Seville. For instruction, Capts. HERMAN B. DEWEY, Bellevue; LOUIS M. CUSHER, FRANK U. SWING, Cincinnati; FRANK MORRIS, Columbus Grove; JAMES R. TILLOTSON, Delphos; GEORGE W. BURNER, Deanboro; RALPH E. REED, Middletown; CLAUDE M. LINGENFELTER, Bucyrus; SAMUEL P. FEINGOLD, Canton; DENNIS RUPP, Cincinnati; WILLIAM H. MILLER, DAVID P. PHILLIPS, Ja., Columbus; HUGH S. JAMES, McArthur; ELROY L. HOOPER, Memphis; ERWIN E. TWMAN, Murray City; JOHN L. SIPHER, Norwalk; FRED W. DIXON, Petersburg; GILBERT R. MICKLETWAITE, Portsmouth; HOMER M. YODER, Smithville; JAMES H. POULTON, Springfield; WALTER A. NOBLE, St. Mary's; JOHN F. RAMSHER, Paris; CHARLES E. KING, Toledo; HOMER H. WILLIAMS, Uhrichsville; ULRIC Z. JUNKERMANN, Westerville.

To Fort Riley for duty, from Fort Oglethorpe, Lieut. FRANK P. GERACI, Cleveland.

To Garden City, L. I., N. Y., for duty, from Fort Oglethorpe, Lieut. FRED E. HALL, Springfield.

To Metuchen, N. J., for duty, from Fort Oglethorpe, Lieut. JOHN E. TALBOTT, Algo.

To New Haven, Conn., for duty, Lieut. WILLIAM F. BAY, Columbus. *To Yale Army Laboratory*, for instruction in bacteriology, Lieut. JACOB D. LOWER, Coshocton. *To Yale Laboratory School*, for instruction in bacteriology, Lieut. ALLEN J. FOX, Cincinnati.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, Lieut. LEO E. COURTRIGHT, Dayton.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School*, for duty, Lieut. SAMUEL H. MILLER, Columbus. For instruction in the treatment of infected wounds, and on completion *to Camp Sheridan*, Montgomery, Ala., base hospital, Capt. RAYMOND W. RUNYAN, Lieut. THEODORE W. WENNING, Cincinnati. On completion *to Camp Wadsworth*, Spartanburg, S. C., base hospital, Capt. JAMES W. ROWE, Cincinnati.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. DAVID R. KLINE, Cleveland; JOHN H. RAMEY, Rock Camp.

The following order has been revoked: *To Camp Meade*, Admiral, Md., for duty, Lieut. DANIEL W. JONES, Columbus.

Oklahoma

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Capt. CHARLES W. HEITZMAN, Muskogee; Lieuts. LESLIE D. CONN, Cowlington; ROBERT E. CALHOUN, Hallett.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieuts. ALFRED H. RUNGIUS; CHARLES E. CALHOUN, Sand Springs; CHARLES E. DAVIS, Woodward.

To Camp Cody, Deming, N. M., base hospital, Lieuts. ROBERT LaR. BROWNING, Haileyville; EDWARD R. ASKEW, Hugo.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. HENRY S. DRUMMOND, Haileyville.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieuts. ARTHUR E. HALE, Alva; CARL L. McCALLUM, Sapulpa.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. WILLIAM B. CATTE, El Reno; from Fort Sill, Capt. JOSEPH T. EDWARD, Lawton.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Doniphan, Lieut. VICTOR C. TISDAL, Elk City.

To Camp Logan, Houston, Tex., base hospital, Capt. JAMES H. MAXWELL, Oklahoma City.

To Camp MacArthur, Waco, Texas, base hospital, Capt. GEORGE H. WETZEL, Sapulpa. For instruction, Lieuts. PAUL H. CHRISTIAN, Oklahoma City; OSCAR C. NEWMAN, JAMES W. ROLLO, Shattuck.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Lieut. JULIUS W. NIEWEG, Duncan.

To Camp Travis, from Sam Houston, Texas, base hospital, Lieut. ANDREW W. HARRIS, Muskogee.

To Camp Upton, L. I., N. Y., for duty, from Fort Riley, Lieut. SAMUEL N. STONE, Edmond.

To Fort Oglethorpe, for instruction, Capts. GEORGE A. KILPATRICK, McAlester; JAMES S. McCALLISTER, Sapulpa; Lieuts. RICHARD F. KING, Ada; JERRY ASHLEY, Fletcher; EDWIN DAVIS, Haskell.

To Fort Riley for duty, from Fort Oglethorpe, Lieut. VICTOR M. GORE, Talosa. For instruction, Capts. CHARLES A. WALTERS, Nowata; GILES E. HARRIS, Hugo; Lieuts. CHARLES A. BRAKE, Cleary; LEONADUS H. McCONNELL, Elmer; THEODORE T. SHACKELFORD, Haskell; RUSSELL J. SHULL, Hugo; ERNEST K. CAVETT, Kiel; ERNEST H. LAUN, Paoli; PAUL O. EILERS, Quinlan; FRANK L. HUGHSON, Vinita. With the board examining the command for nervous and mental diseases, Capt. ERNEST L. BAGBY, Fairfax.

Oregon

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. ARTHUR J. FAWCETT, Riddle.

To Camp Custer, Battle Creek, Mich., for duty, from Camp Lewis, Lieut. CHARLES R. McCOLL, Portland.

To Camp Lewis, American Lake, Wash., base hospital, Capt. WILSON JOHNSTON, Portland.

To Fort Oglethorpe for instruction, Lieut. CHARLES C. POTHERAM, Portland.

To Fort Riley for instruction, Lieut. ARCHIBALD D. MORRISON, Carlton.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. FRANK J. BROWN, Yale.

Pennsylvania

The following orders have been revoked: *To Camp Abraham Eustis*, Lee Hall, Va., for duty, Lieut. ORAM R. KLINE, Philadelphia. *To Camp Wheeler*, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. GUY E. DUTTER, Philadelphia. *To Camp Sevier*, Greenville, S. C., for duty, from Camp Custer, Major THOMAS W. JACKSON, Philadelphia. *To Fort McPherson, Ga.*, for temporary duty, Lieut. PERRY McD. TIBBINS, Beech Creek. *To Fort Oglethorpe* as assistant instructor, from Philadelphia, Capt. WALTER E. LEE, Philadelphia. *To New York City*, Neurological Institute, for intensive training, Lieut. ABRAHAM M. ORNSTEEN, Philadelphia. *To Plattsburg Barracks, N. Y.*, for duty, from Fort McPherson, Capt. HARRY C. WESTERVELT, Pittsburgh.

To Army Medical School, for instructions, Capt. WILLIAM F. ROSS, Aspinwall.

To Camp A. A. Humphreys, Accotink, Va., base hospital, from Army Medical School, Lieut. STANLEY P. REIMANN, Philadelphia.

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. JOHN W. HORN, Hellam; Lieut. ORAM R. KLINE, Philadelphia; from Fort Oglethorpe, Lieut. JULIUS A. BLASSER, Philadelphia.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. CLARENCE A. PAULUS, Telford.

To Camp Crane, Allentown, Pa., base hospital, from Camp Dix, Capt. PERCY DeLONG, Philadelphia.

To Camp Grant, Rockford, Ill., for duty, Capt. HORACE L. W. WIGNALL, Pittsburgh; Lieut. WILLIAM C. BEHEN, Philadelphia.

To Camp Las Casas, San Juan, P. R., base hospital, from Camp Logan, Lieut. JAMES G. MURFIN, Philadelphia.

To Camp Lee, Petersburg, Va., for duty, Capt. JAMES R. BIBIGHAUS, Glenside; Lieut. ARTHUR E. WHITTAKER, Zelienople; from Fort Oglethorpe, Lieut. WILLIAM E. SEIBERT, Lancaster; ALFRED R. SERAPHIN, Philadelphia.

To Camp Logan, Houston, Texas, base hospital, from Rockefeller Institute, Lieut. THEODORE MELNICK, Philadelphia.

To Camp Meade, Admiral, Md., for duty, Major THOMAS W. JACKSON, Philadelphia; from Camp Dodge, Lieut. LOUIS SEGAL, Philadelphia.

To Camp Raritan, Metuchcon, N. J., for duty, from Camp Dix, Capt. I. WARNER KNIGHT, Philadelphia.

To Camp Sevier, Greenville, S. C., base hospital, Lieut. WALTER M. BLACK, St. Mary's; from Camp MacArthur, Lieut. OTTO C. HIRSCH, Philadelphia.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Jackson, Lieut. PAUL H. GERHARDT, Reading; from Fort McPherson, Capt. SAMUEL D. INGHAM, Philadelphia.

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Oglethorpe, Major EDWARD J. G. BEARDSLEY, Philadelphia; Lieut. WALTER S. LUCAS, Wynnewood.

To Fort Oglethorpe, base hospital from Camp Pike, Lieut. EDWIN H. ERNEY, Philadelphia. For instruction, Capts. RICHARD R. PAXSON, Hulmeville; JOSEPH C. BOGGS, WARDEN A. CLARK, ALBERT R. MATHENY, MILES F. STOVER, Pittsburgh; JOHN R. McMURRAY, Washington; HARRY S. LAKE, Willock; WALTER R. SHOEMAKER, Wilmerding; Lieuts. JAMES P. ROTH, Ashland; LEWIS C. DRUFFNER, Avoca; MARSDEN D. CAMPBELL, Belleville; CALIXTO RODRIGUEZ, Easton; IRA Ds McCOY, Emlenton; ALBERT N. REDELIN, Freeland; EDGAR J. STEIN, Lancaster; GEORGE B. PRETZ, Lebanon; GEORGE A. MAYER, Markeville; PAUL L. BRUNER, Oil City; EDWIN P. KITCHEN, JAMES A. MALONEY, MICHAEL PLATT, JOSEPH D. SEIBERLING, MORRIS S. SHAPIRO, BERNARD P. WIDMANN, Philadelphia; HARRY P. SMITH, Pittsburgh; LINFORD R. ROBERTS, Quakertown; WARREN S. REESE, Scranton; FRANK R. HUMPHREYS, West Philadelphia; AMADA R. CORE, Whitley; ARTHUR H. GASTON, York.

To Hoboken, N. J., base hospital, from Camp Meade, Lieut. CAREY C. BRADIN, Tyrone. For duty, Lieut. GEORGE W. MUFFLY, Turbotville.

To Metuchen, N. J., for duty, from Fort Oglethorpe, Lieut. ROBERT O. KOONS, Conyngham.

To Rockefeller Institute for instruction, and on completion *to Camp Devens*, Ayer, Mass., base hospital, Capt. JOHN S. MACKRELL, Lieut. SAMUEL J. GLASS, Jr., Pittsburgh. And on completion *to Camp Upton, L. I., N. Y.*, base hospital, Capt. CHARLES K. FERER, Meadville. For instruction in bacteriology, from Camp Meade, Lieut. JOHN R. CONVER, Philadelphia. On completion *to Army Medical School*, for duty, Lieuts. RAY De PAO, Bearden; JAMES McL. FLEMING, Blairs Mills. For instruction in the treatment of infected wounds, and on completion *to Camp Hancock*, Augusta, Ga., base hospital, Capt. JOEL S. KELSEY, Pittsburgh. On completion *to New York*, Bellevue Hospital, for further instruction, and on completion *to Camp Cody*, Deming, N. M., base hospital, Capt. SAMUEL A. BULON, Ja., Phoenixville.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. HILTON A. WICK, Philadelphia.

To Williamsbridge, N. Y., for temporary duty, Lieut. KIM D. CURTIS, Claghorn.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. JOHN H. BENNETT, York.

Resignation of Capt. HARRY M. ALLEN, Reading, accepted.

Philippine Islands

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. JAMES L. BOOTH, Manila.

Porto Rico

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. ALFRED C. SMITH, Henry Barracks.

To Camp Las Casas, San Juan, P. R., base hospital, Lieut. HONORIO F. CARRASQUILLO, Crabo. For duty, Lieuts. JAMES W. BRICE, Humacao; JOSE R. MARQUES, Patillas; JOHN E. STEVENS, San Juan.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Camp Joseph E. Johnston, Major EMMETT I. VAUGHN, Central Aguirre.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School*, for duty, Lieut. LUIS A. SALIVA, Rio Piedras.

The following order has been revoked: *To Camp Abraham Eustis*, Lee Hall, Va., for duty, from Fort Oglethorpe, Lieut. MARIANO B. CABALLERA, Humacao.

Rhode Island

To Camp Devens, Ayer, Mass., base hospital, Capt. JOHN CHAMPLIN, Westerly.

To Camp Dix, Wrightstown, N. J., base hospital, from New York, Capt. JOHN N. FERGUSON, Providence.

To Camp Hancock, Augusta, Ga., base hospital, from Army Medical School, Lieut. JOHN F. KENNEY, Pawtucket.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. WILLIAM McDONALD, Providence.

To Fort Oglethorpe for instruction, Capt. ARTHUR B. BRADSHAW, Providence.

South Carolina

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. ARCHIE E. BROWN, Greenville.

To Camp Greene, Charlotte, N. C., base hospital, Lieut. WILLIAM B. BAKER, Hemingway.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. THOMAS R. LITTLEJOHN, Sumter.

To Fort McHenry, Md., base hospital, Lieut. LOUIS A. BUIE, Georgetown.

To Fort Oglethorpe for instruction, Capts. GEORGE W. POOVEY, Lancaster; ARTHUR J. McELROY, Union; Lieuts WILLIAM L. PRESSLY, Due West; ENOCH M. DIBBLE, Marion; FURMAN T. SIMPSON, Westminster.

To Memphis, Tenn., Signal Corps Aviation School, for duty, from Charleston, S. C., Lieut. CLAUDIUS F. BULLOCK, Nicholes.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for instruction, from Charleston, S. C., Capt. CHARLES W. KOLLOCK, Charleston.

South Dakota

To Camp Dodge, Des Moines, Iowa, base hospital, Capts. JESSIE D. WHITSIDE, Aberdeen; EUGENE M. STANSBURG, Vermilion; Lieuts. REZIN REAGAN, Carretson; ROY G. STEVENS, Sioux Falls. To examine the command for nervous and mental diseases, Lieut. MARTIN L. STIFFLER, Yankton.

To Camp Fremont, Palo, Alto, Calif., for duty, Lieut. CLEVE R. SENESCALL, Vermillion.

To Camp Grant, Rockford, Ill., base hospital, Capt. JOHN F. ADAM, Aberdeen; Lieuts. BUELL H. SPRAGUE, Huron; STEPHEN A. DONAHOE, GUY E. VAN DEMARK, Sioux Falls; from Fort Sill, Capt. THOMAS W. MOFFITT, Deadwood.

To Camp MacArthur, Waco, Texas, for duty, from Fort Riley, Capt. FLOYD S. KIDD, Woonsocket.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Capt. ROBERT M. MALSTER, Carter.

To Fort Oglethorpe for duty, from Fort Riley, Lieut. DENNIS W. SULLIVAN, Britton. For instruction, Capts. WELLINGTON L. MAYTUM, Alexandria; WILLIAM F. KELLER, Lieut. FRANK L. PUTMAN, Sioux Falls.

Tennessee

To Camp A. A. Humphreys, Accotink, Va., for duty, Lieut. STANTON H. BARRETT, Chattanooga.

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieuts. FORREST S. LETELLIER, Knoxville; JOSEPH H. LITTERER, Nashville.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. JOHN H. McSWAIN, Paris.

To Camp Gordon, Atlanta, Ga., base hospital, Major GEORGE M. ELLIS, Chattanooga.

To Camp Lee, Petersburg, Va., for duty, Capt. DION A. GREER, Pikeville.

To Fort Benjamin Harrison, base hospital, Lieut. HENRY C. LONG, Chattanooga.

To Fort Des Moines, Iowa, base hospital, from Camp Dodge, Lieut. ELMER S. MAXWELL, Nashville.

To Fort Oglethorpe, base hospital, Lieut. JOHN A. McINTOSH, Memphis. For instruction, Capts. JESSE F. ADAMS, Bradyville; FRANCES H. BOMAR, Knoxville; ROBERT L. JONES, ALPHEUS L. SHARBER, Nashville; Lieuts. PHARES W. CALLIHAN, Memphis; FOUNTAIN B. HULME, Nashville.

To Hoboken, N. J., base hospital, from Buffalo, Lieut. ROBERT C. DAVIS, Knoxville; from Camp Dix, Lieut. ELLIS L. WILKINS, Dyersburg; from Fort Oglethorpe, Lieut. WILLIAM E. TROXLER, Lewisburg.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, Lieut. RALEIGH R. DAVENPORT, Memphis. On completion *to Camp Meade, Admiral, Md.*, base hospital, Lieut. HORACE E. THOMAS, Memphis.

To Rockefeller Institute for instruction, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, Capt. JOHN A. PRICE, Jasper.

Texas

To Camp Alfred Vail, Little Silver, N. J., for temporary duty, from Camp Devens, Lieut. DOLPHUS E. COMPERE, Dallas.

To Camp Cody, Deming, N. M., base hospital, Lieut. FRANK D. MABRY, Port Arthur.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. JOHN W. BALKE, Rosenberg.

To Camp Grant, Rockford, Ill., base hospital, from Fort Sill, Lieut. BENJAMIN F. SMITH, Jr., Galveston. For duty from Fort Riley, Lieut. REUBEN W. JACKSON, Dallas; ELISHA H. ROBERTS, Marshall.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Sam Houston, Lieut. RICHARD C. CURTIS, Tempie.

To Camp John Wise, San Antonio, Texas, for duty, from South San Antonio, Lieuts. JAMES W. SHADDIX, Marietta; ARTEMUS H. MARTINDALE, Tepeba.

To Camp Lee, Petersburg, Va., for duty, from Camp Beauregard, Lieut. JOHN J. GILL, Lamarco.

To Detroit, Mich., for duty, from San Antonio, Capt. WALTER R. RUSSELL, Ben Hur.

To Fort Des Moines, Iowa, base hospital, Lieut. HENRY G. NEWSOM, Dallas.

To Fort Oglethorpe, base hospital, from Camp MacArthur, Capt. WILLIAM L. CROTHWAIT, Waco. For duty, from Fort Riley, Major CARL LOVELACE, Waco. For instruction, Capts. MANTON M. CARRICK, Dallas; EDWARD G. CLAVIN, San Antonio; Lieut. JIM CAMP, Fresno. From Fort Riley, Capt. WILLIAM H. MORROW, Dunn; from Fort Sill, Capt. LUKE P. ALLISON, Brownwood; from Washington, Lieut. JOHN W. GOODE, San Antonio.

To Fort Riley for instruction, Capts. WESTON W. NIPPER, Brackettville; CHARLES B. BROWN, El Paso; ROBERT D. HARRIS, Fulshear; GEORGE D. CRIMES, RAYMOND DAWES, Houston; Lieuts. ROBERT L. LONG, Atlanta; EDWARD H. SNYDER, Canadian; JOHN A. MONK, Kempner; LEWIS B. BIBB, Paris; RANDALL E. CROMEANS, Strawn; JAMES K. SMITH, Texarkana; WALTER W. ANDERSON, Village Mills.

To Garden City, L. I., N. Y., for duty, from Fort Riley, Lieut. ELISHA H. ROBERTS, Marshall.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieut. JOHN W. HARPER, Paducah.

To Richmond, Va., for duty, from Camp Greene, Lieut. WILMER A. HADLEY, Friendswood.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. ALLEN H. NEIGHBORS, Sequin.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. BRUNS P. HOLLAND, Beaumont.

The following order has been revoked: *To report by wire to the commanding general*, Southern Department, for assignment to duty, Lieut. FRED H. HODDE, Benton.

Utah

To Camp Beauregard, Alexandria, La., *for* duty, from Fort Riley, Lieut. ARHTUR D. KNOTT, Murray.

To Camp Fremont, Palo Alto, Calif., for duty, Lieut. GARLAND H. PACE, Murray.

To Camp Grant, Rockford, Ill., base hospital, from Philadelphia, Lieut. DAVID K. ALLEN, Salt Lake City. For duty, from Fort Riley, Lieut. HARRY S. SCOTT, Salt Lake City.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Riley, Lieut. FRANK K. BARTLETT, Ogden.

To Fort Oglethorpe for duty, from Fort Riley, Capt. FREDERICK G. CLARK, Ogden.

To New Haven, Conn., Yale Laboratory School, for instruction in bacteriology, Lieut. BERT A. DANNENBERG, Hober.

Vermont

To Camp Dix, Wrightstown, N. J., for duty, Lieut. BARNET FRANK, Burlington.

To Fort Oglethorpe for instruction, Capt. STODDARD S. MARTIN, Windsor; Lieuts. WRON E. WHITE, Brattleboro; JOHN A. HUNTER, MARTIN J. PAULSEN, Burlington.

To Fort Worth, Texas, Signal Corps Aviation School, for duty, from San Antonio, Capt. ARTHUR L. LARNER, Burlington.

To New Haven, Conn., Yale Laboratory School, for instruction in bacteriology, Capt. HENRY L. CRAGAN, Rutland.

To Rockefeller Institute for instruction, and on completion *to Camp Lee*, Petersburg, Va., base hospital, Capt. WILLIAM E. LAZELL, Barre.

Virginia

To Camp Abraham Eustis, Lee Hall, Va., camp hospital, from Camp Lee, Major PHILANDER C. RILEY, Markham.

To Camp Greene, Charlotte, N. C., base hospital, Capt. GEORGE P. HAMNER, Lynchburg.

To Camp Las Casas, San Juan, P. R., for duty, from Camp Lee, Lieut. CARROLL E. FOLEY, Lovettsville.

To Camp Lee, Petersburg, Va., base hospital, Lieut. JAMES R. GORMAN, Lynchburg.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Zachary Taylor, Lieut. ROBERT J. EVANS, Jr., Hopewell.

To Fort Oglethorpe for instruction, Lieuts. BURL BASSETTE, Hampton; TURNER S. SHELTON, Richmond; RICHARD E. PARKER, Suffolk.

To Fort Ontario, N. Y., base hospital, from Fort Riley, Lieut. CLIFFORD A. FOLKES, Roanoke.

To Morrison, Va., for duty, from Fort Oglethorpe, Lieuts. JOHN S. GILMAN, Richmond; WILLIAM T. GAY, Suffolk.

To New Haven, Conn., Yale Army Laboratory School, for duty, from Army Medical School, Lieut. CORNELIUS B. COURTNEY, Richmond.

To Newport News, Va., base hospital, from New York, Lieut. JOSEPH T. McKINNEY, Richmond.

To Rockefeller Institute for instruction in bacteriology and on completion *to Army Medical School* for duty, Lieut. JAMES O. FITZGERALD, Richmond.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. EDWIN M. CORNS, Richmond.

Washington

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. RALPH F. GOETTER, Colville.

To Camp Fremont, Palo Alto, Calif., for duty, Lieut. CLARENCE E. WILSON, Seattle.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Lieut. WILLIAM W. MATTSON, Seattle.

To Camp Leach, American University, Washington, D. C., from Fort Riley, Lieut. LUNSFORD M. THOMPSON, Spokane.

To Camp Lewis, American Lake, Wash., base hospital, Capt. EDGAR L. INGERSOLL, Spokane.

To Camp Meade, Admiral, Md., base hospital, from New York, Capt. WILMOT DE L. READ, Tacoma.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Capt. FRANK C. ROBINSON, Walla Walla.

To Fort Leavenworth, Kan., for duty, from Fort Riley, Capt. WILLARD G. PALMER, Seattle.

To Fort Riley for instruction, Capt. FREDERIC G. ULMAN, Enumclaw.

To Hoboken, N. J., base hospital, from Camp Meade, Lieut. WHITING B. MITCHELL, Sumner; from New York, Lieut. HAROLD B. THOMPSON, Seattle.

West Virginia

To Camp Devens, Ayer, Mass., for duty, from Camp Pike, Lieut. SOLOMON L. CHERRY, Clarksburg.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. CARTER S. FLEMING, Fairmont.

To Camp Lee, Petersburg, Va., for duty, Lieut. CARSON A. WILLIS, Clarksburg.

To Camp Upton, L. I., N. Y., with the board examining the command for nervous and mental diseases, Capt. CHARLES W. HALTERMAN, Clarksburg.

To Fort Oglethorpe for instruction, Capt. TIB N. GOFF, Kenova; Lieuts. ERLAND H. HEDRICK, Beckley; WALTER W. HEALD, Huntington; GROVER C. ROBERTSON, Spencer; from duty as a drafted man, Lieut. JOHN E. COREKEAN, Sand Fork.

To Metuchcen, N. J., for duty, from Fort Oglethorpe, Lieuts. ETLEY P. SMITH, Barrackville; CLAUDE M. VAUGHAN, Farmington; JOHN H. HOSKINS, Lillybrook.

To New York City, Nerucological Institute, for instruction, from Camp Cody, Major LEWIS C. COVINGTON, Charleston.

To Rockefeller Institute for instruction, and on completion *to Camp Sheridan*, Montgomery, Ala., base hospital, Lieut. EDWARD E. ROSE, Huntington.

Wisconsin

To Camp A. A. Humphreys, Accotink, Va., base hospital, Capt. CLARK C. POST, Barron, Capt. GEORGE H. DICKINSON, Milwaukee.

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. VICTOR DROOCK, Rice Lake.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. WILLIAM H. BAYER, Gleason; FRANCIS J. BROGHAMER, Superior.

To Camp Grant, Rockford, Ill., base hospital, Lieut. WILLIAM F. GROTJAN, Milwaukee.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Doniphan, Capt. GEORGE E. THOMPSON, Kenosha.

To Camp McClellan, Anniston, Ala., for duty, from Fort Riley, Lieut. FRANK H. KENNEDY, Greenwood.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. FRANK E. ANDRE, Kenosha; from Fort Oglethorpe, Lieut. CHARLES E. STOLZ, Milwaukee. For duty, Lieut. FRANK B. TAYLOR, Madison; from Fort Riley, Lieut. SHERMAN M. KYES, Owen.

To Fort Leavenworth, Kan., for duty, from Fort Riley, Capt. JOHN W. BIRD, Stevens Point.

To Fort McDowell, Calif., for duty, from Fort Leavenworth, Lieut. ALEXANDER J. BERGER, New Holstein.

To Fort Oglethorpe, for duty, from Fort Riley, Capts. HERMAN G. MERTENS, Bayfield; JOHN W. BOREN, Marinette; CLIFFORD J. OUELLETTE, Oconto. For instruction, Lieut. JOHN W. ADAIR, Kenosha; JOHN D. GILLIS, Milwaukee.

To Fort Riley, for instruction, Capt. WILLIAM B. CAMPBELL, Menomonee Falls; Lieut. ALPHONSE J. GEREND, Cato; AVERY L. MYRICK, Eastman; ROBERT L. COWLES, Green Bay; Lieut. EBER E. HAGGERTY, La Force; ROBERT J. BACH, THEODORE BURBACK, Milwaukee; JOHN H. BASSEN, Mount Calvary; THOMAS G. PARKER, Rome; JOHN J. MINAHAN, St. Nazians; JOSEPH S. CUTLER, Wawatosa.

To Hoboken, N. J., base hospital, from Camp Sevier, Capt. THOMAS F. SHINNICK, Beloit.

To Montgomery, Ala., for duty, from College Station, Tex., Capt. HUBERT S. STEENBERG, Milwaukee.

To New Haven, Conn., Yale Laboratory School, for instruction in bacteriology, Lieut. URBAN J. DURNER, Milwaukee; Lieut. OSCAR E. ISMAEL, Mount Horeb.

To Washington, D. C., for temporary duty, from Fort Oglethorpe, Lieut. OTIS W. C. MAERCKLEIN, Wawatosa.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. CARL O. HERTZMAN, Ashland.

The following orders have been revoked: *To Camp Dix*, Wrightstown, N. J., base hospital, from Camp Crane, Lieut. CHARLES R. RYDELL, Superior. *To Fort Riley*, for instruction, Lieut. WAYNE A. MUNN, Janesville.

Wyoming

To Camp Beauregard, Alexandria, La., base hospital, Lieut. JOSEPH F. O'DONNELL, Casper.

To Fort Riley for instruction, Capt. JOHN HYNDS, Buffalo.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

City Establishes Pathologic Laboratory.—The Municipal Pathological Laboratory of San Barbara opened, July 10.

Personal.—Dr. Alexander S. Kelly, Oakland, was reelected president of the Oakland Board of Education, July 8.——Dr. E. Gilman Goodrich, Los Angeles, has been appointed assistant surgeon at the Los Angeles Receiving Hospital to succeed Dr. Arthur D. Houghton, who resigned to enter the military service.

GEORGIA

Personal.—Dr. Henry R. Donaldson, Atlanta, who has been confined to his home for three months on account of injuries received in an automobile accident, is convalescent, and has resumed practice.

Health Board Appropriations.—The house appropriations committee, July 15, set aside $60,000 for the state board of health for the coming year, or exactly double the amount appropriated for the board in 1916. The board had asked for an appropriation of $70,000.

ILLINOIS

Typhoid in Moline.—Typhoid fever is reported to be epidemic in Moline, where 109 cases have been reported, with one death. Officials of the state board of health have been sent to Moline to determine the cause of the epidemic, investigate the water and milk supplies and the matter of sewage outlets.

Personal.—Dr. Robert C. Bourland, Rockford, formerly major surgeon of the Third Infantry, Ill. N. G., was elected chairman of the west side selective service board, July 18. ——Dr. S. Claude Andrus has been appointed chief surgeon for the Chicago, Milwaukee and Gary Railroad, with headquarters at Rockford.

Chicago

Memorial Institute Changes Name.—The name of the Memorial Institute for Infectious Diseases, founded in memory of John Rockefeller McCormick, has been changed to the John Rockefeller McCormick Institute for Infectious Diseases.

Mandamus Proceedings Instituted.—The Chicago Hospital College of Medicine, whose recognition as an institution in good standing was taken away by action of the Illinois State Board of Health, June 26, 1917, has instituted mandamus proceedings against Francis W. Shepardson, director, and other officers of the department of registration and education, with a view to compelling restoration to good standing. According to the last published report the college is not recognized by thirty-seven states.

INDIANA

New Baby Clinics.—Three additional baby clinics have been established by the Children's Aid Association of Indianapolis, which makes a total of eleven clinics at present in operation in the city.

Personal.—Dr. James E. Luckey, Wolflake, is reported to be in a critical condition as the result of stab wounds inflicted by a farmer living near Wolflake.——In the case of Dr. George F. Smith, Bicknell, charged with securing license to practice medicine in Indiana by fraud, the state medical board dismissed the proceedings.

IOWA

Personal.—Capt. Daniel J. McCarthy, Davenport, has returned after six months' service on the Roumanian front. ——Dr. Maude Hall, Grant, has sailed for Palestine. She expects to make her headquarters at Jerusalem and do Red Cross work with the British Expeditionary Forces.

Warfare on Social Diseases.—Dr. Guilford H. Sumner, Des Moines, secretary of the state board of health, has prepared and is having printed 20,000 copies of a bulletin entitled "Instructions for Preventing the Transmission of Venereal Diseases." Attached to the bulletin is a report form to be filled out by physicians treating cases of venereal disease.

KENTUCKY

Personal.—Dr. Robert V. Ferguson, Trenton, was stricken with cerebral hemorrhage, July 3.——Dr. Claude B. Rankin has resigned as city health officer of Lexington.

Staff at Zachary Taylor Adopts Resolutions on Death of Major Karpas.—The base hospital staff at Camp Zachary Taylor has adopted resolutions of sympathy on the death in France of Major Morris J. Karpas, an announcement of which appeared in The Journal last week. Before leaving for France, Major Karpas was attached to the neuropsychiatric personnel at Camp Taylor.

MAINE

Personal.—Dr. Joseph B. Drummond, Portland, has been nominated as a member of the Public Health Council and also as a member of the state board to regulate the practice of embalming.

Year of College Required.—At its July meeting the Maine Board of Registration in Medicine voted that in 1919 and thereafter all applicants for a license to practice medicine in that state must have completed at least one year of college work in addition to a four-year high school course before having entered on the study of medicine.

MARYLAND

Infantile Paralysis.—There have been sixteen cases of infantile paralysis in Baltimore since the end of April, and eight cases have been reported from the counties outside of Baltimore.

Visitor from Peru.—Col. Gerardo Alarco of Lima, Peru, surgeon in chief of the Peruvian Army, who is making a tour of the United States, visited Johns Hopkins Hospital, Baltimore, July 13.

Meetings.—The thirty-ninth meeting of the Maryland Psychiatric Society was held in conjunction with the Baltimore County Medical Association at the Sheppard and Enoch Pratt Hospital, Towson, July 17. Lieut. Charles C. Rowley, Winnebago, Wis., on duty at Camp Meade, spoke on "The Neuropsychiatrist in the Army."

Campaign to Secure Nurses Opened.—A meeting to mark the official opening of the local United States Student Nurse Campaign by which an effort will be made to secure 510 Maryland women to enroll for courses in hospital training, was held at Osler Hall, Baltimore, July 25. Lieut.-Col. William H. Welch, M. C., N. A., presided; Col. Winford H. Smith, superintendent of the Johns Hopkins Hospital, addressed the meeting, as did also Miss Annie Goodrich, dean of the Army School of Nursing, and Mrs. May Lamberton Becker, chairman of the Foreign News Bureau of Women's Section, National Council of Defense.

Personal.—Dr. Brooks I. Jamison, Emmitsburg, who sustained a fracture of the skull, arm and clavicle in an automobile collision, July 7, and was taken to the Frederick City Hospital for treatment, left the hospital for home, July 11.—— Dr. G. Hampton Richards, formerly school physician at the Tome School, Port Deposit, who enlisted with the British forces in 1917 and later joined the American Army, has been slightly wounded. Dr. Richards was stationed in a field hospital behind the firing line and had just recovered from the effects of being gassed.——Dr. Arthur L. Fehsenfeld, Baltimore, who was recently operated on for appendicitis, is recovering at the University Hospital.

MASSACHUSETTS

Personal.—Dr. Jacob J. Golub, Dorchester, Boston, has been appointed acting assistant surgeon, U. S. P. H. S., with station at Long Wharf, Boston.——Dr. Paul Thorndyke has been appointed clinical professor of genito-urinary surgery, Dr. George R. Minot, assistant professor of medicine, Dr. Isaac Chandler Walker, assistant professor of medicine, and Dr. Cyrus H. Fiske, assistant professor of biological chemistry in Harvard Medical School.

Red Cross Convalescent Hospital.—A Red Cross convalescent hospital has been established at Cuttyhunk for convalescent officers of the Army, Navy and Allies, and Red Cross. The hospital is located on an island at the mouth of

Buzzard's Bay, lying between it and Vineyard Haven. All applications for admission should be made to Dr. Norman E. Ditman, medical director, and all officers will be met on arrival by boats at New Bedford. The hospital will remain open until October 1.

MICHIGAN

Whooping Cough Arm Band.—A regulation to enforce the wearing of a yellow arm band bearing the words "whooping cough," by children afflicted with the disease and the placarding of the houses in which the disease is found, went into effect in Detroit, July 16. Refusal to wear the arm band will entail arrest and prosecution. Wearers of this arm band are not to be admitted to places of public entertainment.

Reorganization of Administrative Staff.—Due to the absence of Dean Vaughan in war service, a reorganization of the administration staff of the University of Michigan Medical School was made necessary. The present officers are as follows: dean, Victor C. Vaughan, M.D., LL.D., Colonel, M. C., N. A. (absent on leave); assistant dean, Charles W. Edmunds, A.B., M.D.; acting secretary, Rollo E. McCotter, M.D., and assistant secretary, Ethel Bradley Flick.

MINNESOTA

Fight on Venereal Disease.—Application for an apportionment for Minnesota, of the million dollars which was voted by Congress to aid states in their campaigns against venereal disease, was made by Dr. Harry G. Irvine, Minneapolis, director of the venereal division of the state board of health, July 13. This application is based on action taken by the state emergency board allowing $35,000 for this campaign in Minnesota.

Personal.—Dr. Harry A. Britton has been appointed acting superintendent of the Minneapolis City Hospital, succeeding Dr. Herbert O. Collins. Dr. Britton will take up his new duties, August 31.——Dr. T. M. Hall, formerly health commissioner of Minneapolis, has been appointed superintendent of the State Sanatorium for Consumptives, Walker, succeeding Dr. George W. Beach who has resigned to enter the military service.

NEBRASKA

Personal.—Dr. John P. Barry, Hebron, who has been ill with pneumonia at Fort Riley, Kan., is reported to be convalescent.

Addition to Medical School.—Excavation was started, July 18, for the foundation of the additional building to the University of Nebraska Medical School, Omaha, to be erected at a cost of $150,000. The new building will be four stories in height, red brick and will home the laboratories of pharmacology, physiology and biologic chemistry.

Midsummer Medical Meeting.—The midsummer meeting of the Elkhorn Medical Association was held at the Norfolk Country Club, July 16, and Col. John M. Banister, Omaha, president-elect of the state medical association, delivered an address on "Medical Necessities of the War." The winter session of the association will be held at Omaha or Fremont.

NEW JERSEY

Personal.—Chester H. Mills, health officer of Montclair for thirteen years, announces his resignation to take effect, August 15, in order to become state commissioner of health of Delaware.——Dr. Frederick W. Maroney, Trenton, has been appointed instructor and director of physical education and hygiene in the state school system.——Dr. Henry P. Hess has been appointed attending physician to the Isolation Hospital, Paterson.

Open Army Medical School.—An Army medical school, said to be the first of its kind in the country for the reconstruction of deaf and nearly deaf soldiers, was opened yesterday in the New Hotel, Cape May. Major William W. Keen, M. R. C., U. S. Army, compared conditions today with those during the Civil War, in the opening address. Lieut.-Col. Charles W. Richardson, in charge of the new school, and Col. Paul F. Straub, commandant of the base hospital, explained the purposes of the institution.

NEW YORK

Brazil School Director in Albany.—Dr. Monsillo Sobia, medical director of schools of Brazil, visited Albany, July 20, and interviewed Dr. Clinton P. McCord relative to the inspection work which is being carried on in the public schools.

Child Welfare Work in Buffalo.—The city council of Buffalo, July 10, adopted a report authorizing an appropriation of $15,000 for child welfare work. The money will be used for the equipment of nutrition clinics, for the care of convalescent mothers and sickly babies, for the health education of parents and children, and for the prevention of stillbirths.

Personal.—Dr. Frederick W. Fletcher, Freeport, has succeeded Dr. Louis N. Lanehart, resigned, as a member of Local Board No. 3.——Dr. John A. Lichty, Pittsburgh, formerly a member of the medical staff of the Clifton Springs Sanatorium, has been elected president of the board of trustees of the institution.——Dr. Calvin E. Nichols, health officer of Troy for eighteen years, has resigned.

Beloved Physician Honored.—The memorial statue of the late Dr. Edward A. Trudeau, founder of the Adirondack Cottage Sanatorium, now known as the Trudeau Sanatorium, Saranac, will be unveiled, August 10. The principal oration will be made by Rev. Philemon F. Sturgis. The statue is a gift of former patients of the sanatorium, and will bear an inscription indicative of the love and gratitude of the donors.

New York City

Physical Examinations for New York Children.—The Health Committee of the Mayor's Committee on National Defense has begun the work of making physical examinations of all children under 5 years of age. More than 100 nurses, welfare and social workers and 300 physicians have volunteered to work at least two days a week without charge. During the week of July 15 about 3,000 children were examined. Dr. S. Josephine Baker, director of the bureau of child hygiene of the department of health, is directing the work. She states that there are more than 600,000 children to be examined.

Health Department Warns Druggists Against "Ear Oil."—The manufacturer of "Leonard's Ear Oil," following a complaint of the health department, was arrested and arraigned before the Court of Special Sessions which adjudged him guilty of making false statements and claims and sentenced him to thirty days in jail or to pay a fine of $250. He paid the fine. The department of health now warns all druggists that the continued sale of "Leonard's Ear Oil" with these false and fraudulent statements attached will constitute a violation of the Sanitary Code, and will subject the druggist so doing to prosecution by the department of health.

Health Department Wants Bureau of Oral Hygiene.—A resolution has been introduced before the committee on general welfare of the board of aldermen which provides for the creation of a bureau of oral hygiene in the division of child hygiene of the health department. At a hearing recently held for the purpose of discussing this resolution, Dr. S. Josephine Baker made the statement that of all the pupils in the schools of New York 67 per cent. had been found by the department inspectors to have defective teeth. The health department now conducts a number of dental clinics but desires to make these clinics mandatory on the health commissioner.

Board of Regents Gives Hearing on Women's Hospital Control.—The Alumnae of the New York Medical College and Hospital were granted a hearing before the board of regents, July 22. After listening to the argument of the counsel of the Alumnae Association the board of regents ordered the trustees to submit at once a detailed report of the finances of the institution. The women physicians have met with marked success in their effort to raise $50,000 with which to continue the work of the hospital but they cannot go further until they have a knowledge of the financial affairs of the institution. When they get entire control of the institution they intend to turn it over to the government for war needs.

Major Caldwell Leaves Estate to Columbia University.—The will of Major Eugene Wilson Caldwell, M. R. C., U. S. Army, which was recently filed for probate, leaves the bulk of his estate of about $150,000 to Columbia University on the death of his wife and mother. His laboratory and its contents and the good will of the establishment he leaves to his collaborators, Dr. Harry M. Imboden and Thomas Ricker. He requested them to continue the work on which he was engaged. A device that he recently perfected for determining the depth of a foreign body beneath the skin by photography, he gave to the United States government at the outbreak of the war. The bequest which Columbia University will receive is to be known as the Eugene Wilson Caldwell Fund for general educational purposes.

OHIO

Personal.—Dr. Erwin A. Peterson, Cleveland, will leave for Italy next month with the Red Cross Antituberculosis Unit. ——Dr. Anderson L. Smedley, health officer of Hamilton since 1912, has resigned to take effect, August 14. He will enter the military service.——Dr. Everett E. LeFever, Athens, fractured his arm recently.

Educational Features of Venereal Campaign.—The state department of health has issued three new pamphlets of instruction regarding sex matters and venereal disease as educational features of the state campaign. The pamphlets are entitled "Some Things a Young Man Should Know About Sex and Sex Diseases," "How Any Boy Can Develop His Health and Strength," and "How to Instruct Your Child in the Facts of Sex." They are for free distribution. In the pamphlet on sex instruction, parents are advised as to the necessity for forestalling improper instruction from evil-minded companions by proper instruction in the home, and as to methods of conveying the necessary information. The pamphlet for boys gives general advice for physical development, bringing sex in as one of the phases of bodily health which must be considered. The pamphlet for young men deals plainly with the question of how a man should order his sexual life, stating the facts and leaving the individual to decide what course he will pursue. Pamphlets for girls and young women will be issued later, according to the health department.

PENNSYLVANIA

Carlisle Indian School to Become Base Hospital.—The Indian school, located at Carlisle, is to become a base hospital. This institution has been used for the last forty years as an educational institution for the Indians. It has been turned over to the War Department and in the future will house convalescent soldiers.

Philadelphia

Personal.—Dr. Albert E. Blackburn has been reappointed to the secretaryship of the city board for registration of nurses.——Dr. Henry K. Gaskill has resigned as chief of clinic and assistant professor of dermatology in the Jefferson Medical College Hospital.——Dr. Frank C. Hammond has been appointed medical aide to Governor Braumbaugh, succeeding Dr. Edward P. Davis.

CANADA

Hill Resigns.—Capt. Hibbert W. Hill, who recently resigned as medical officer of health of London to become director of public health of the state of Minnesota, has been presented with a handsome club bag by the medical men of London.

Additional Military Board.—An additional military medical board of review for Toronto district to be known as Board No. 4, has been appointed consisting of Lieut.-Col. Henry Bascom, Oshawa, president, Capt. C. C. Tissett, Brantford, and Capt. Robert J. Gibson, Sault Ste. Marie. The board will sit in Toronto for the present with Board No. 1.

New Ottawa District Officers.—The Ottawa District Medical Association held its annual meeting at Hull, July 27, under the presidency of Dr. J. D. Archambault, decided to petition the Provincial government for the establishment of a Workman's Board of Compensation, and elected the following officers: president, Dr. J. G. U. Archambault, Hull, Que.; vice presidents, Drs. Emile V. Desy, Ste. Rose de Lima, and J. Robillard, Thurso, Que., and secretary-treasurer, Dr. Joseph E. D'Armours, Papineauville.

GENERAL

Eye, Ear and Throat Men to Meet.—The annual meeting of the American Academy of Ophthalmology and Oto-Laryngology will be held in Denver, August 5 to 7, under the presidency of Major Allen Greenwood, Boston.

Bequests and Donations.—The following bequests and donations have recently been announced:

East River Home Foundation, New York City, has made the following appropriations from its net income from the past year for the relief of tuberculosis: tuberculosis work of the Vanderbilt Clinic and Presbyterian Hospital tuberculosis clinic, each $9,000; civilian tuberculosis relief work in France, under the direction of the American Red Cross, $8,000; the Trudeau Sanatorium, Saranac Lake, N. Y., and the philanthropic work of the Loomis Sanatorium, each $3,000; the New York Association for Improving the Condition of the Poor, New York City, $2,500; the Stony Wold Sanatorium for the tuberculosis league work, Lake Kushaqua, N. Y., $2,000; the Hospital and House of Rest for Consumptives, Inwood, N. Y., $1,000, and the Henry Street Settlement for tuberculosis nursing, New York City, $500.

Presbyterian Hospital, New York City, $7,500, Bridgeport Hospital, Bridgeport, Conn., $10,000 by the will of John W. Sterling.

Institutions for the benefit of sufferers from tuberculosis, $5,000 by the will of Severt J. Marwick, Story City, Iowa.

FOREIGN

Death of German Pediatrist.—The *Nederlandsch Tijdschrift* mentions the death of the Berlin pediatrist, Prof. Ad. Baginsky, aged 75. He founded the *Archiv für Kinderheilkunde* in 1879.

Medical Unit Reaches London.—The first all Jewish medical unit composed of forty-three physicians, nurses, sanitarians, administrators and officers has reached London on its way to Palestine where it is to establish a public health service.

Cholera Appears.—Cholera has appeared in Moscow where 224 known cases, seventy-eight suspected cases, and twenty-six cases of stomach disease have been recorded.——Up to the present 120 cases of cholera have occurred in the province of Petrograd.——July 18, six cases of Asiatic cholera were reported from Stockholm, Sweden, on board the Swedish steamer which arrived from Petrograd, July 11.——It is reported from Copenhagen that 500 deaths from cholera occur daily in Petrograd, and that there are thousands of cases of the disease in Saratov.

Repatriated Tuberculous Italian Soldiers.—In June the Italian Red Cross train proceeded directly into Austria to get the tuberculous prisoners of war who were to be repatriated. On reaching the borders of Switzerland the physicians and nurses in charge of the train were substituted by Swiss, only one railroad official and the steward remaining on the train for the entire trip. The difficulties both of a diplomatic and railroad traffic nature were great, but were finally surmounted. The repatriated tuberculous prisoners were thus taken direct from Feldkirch in Austria to the sanatorium at Nervi, on the Italian shore, without change of cars.

A Medical Annual Meeting in Wartime in a Neutral Country.—The notice of the eighty-ninth general meeting of the medical Centralverein of Switzerland states that "notwithstanding the difficulties of the present time and the constantly increasing difficulties, we physicians of Switzerland must not get out of touch with each other. Hence the members of the *Verein* are summoned to this meeting." . . . It is stated that beverages will not be served with the lunches, and members are specifically warned not to forget to bring their bread and fat ration cards with them. The main address will be by Nägeli on the endocrine aspects of chlorosis, but the one subject appointed for discussion, with three addresses to open it, is the extent and causes of and the means to combat the declining birth rate.

Organization of Physicians in French Legislature.—The thirty-four medical members of the upper and lower houses of parliament in France have recently organized and decided to hold monthly meetings and seek to keep in closer touch with the profession in general. It is planned to have the chairman and secretary of the organized medical members attend the meetings of the more important medical organizations, especially the medical syndicates, when the latter have anything special they wish to discuss with them. The *Nederlandsch Tijdschrift* remarks that if the seven medical members of the Netherlands parliament would forget the party lines now separating them, and attend certain board meetings of the National Medical Association, it might prove possible to avert much legislation detrimental to the profession. "But this," it adds, "is altogether too beautiful a dream."

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Dr. Darling Appointed Professor in Brazilian School.—Dr. Samuel T. Darling of the International Health Board has been appointed professor of hygiene and director of laboratories of the Faculdade de Medicina e Cirurgia of São Paulo, Rua Brigadeiro Tobias 45, São Paulo, Brazil.

Lebredo Member of Rockefeller Institute.—Dr. M. G. Lebredo, a leading hygienist, bacteriologist and laboratory worker of Cuba and member of the editorial staff of the *Revista de Medicina y Cirugia* of Havana, has been appointed a member of the Rockefeller Institute and is leaving on a scientific mission for Ecuador on behalf of the institute.

Subscriptions for War Aid for French Physicians.—A Havana exchange relates that all the medical organizations of Cuba have contributed to the French war fund, the Caisse

d'Assistance Médicale de la guerre et secours de guerre de la famille médicale, the sum of 1,205 pesos being thus raised and forwarded through the French minister to Cuba. The list of donors included the committee of former students of the University of Paris, the four medical and the one dental and one pharmaceutic organizations, and the six leading medical journals, the Medical Press Association and the committee in charge of the recent National Medical Congress.

Prophylaxis of Disease in Brazil.—An important step has been taken in Brazil by the founding of the Liga Pro-Saneamento do Brazil with the comprehensive program of promoting in every possible way the physical and moral health of the population of Brazil. The aim is to aid the public authorities in every way, indirectly and directly by commissions of experts when such are needed in combating malaria, Chagas' disease, leishmaniasis, syphilis, trachoma, leprosy, etc. Owners wishing to improve the sanitary condition of their ranches will be given expert advice. The league plans to establish branches throughout the country, with subcommittees to carry on the work. One of the first resolutions adopted was to demand the abolishing of taxes and duties on articles necessary in sanitation, and reduction in the price of such articles to render their adoption easier. A sanitary code for the republic is to be drawn up and presented for the approval of the legislature, hoping by this means to standardize the work and establish the responsibility of the state, the province and the community. The Conselho Supremo de Assistencia is to consist of forty members, medical and lay, with Prof. Miguel Couto as the president. The executive board consists of Dr. B. Penna E. de Andrade and R. de A. Magalhaes, besides three vice presidents, secretary and treasurer. The *Liga* has a local habitation in the Journal de Commercio building. Chagas, A. de Castro, Austregesilo and Carlos Seidl, chief of the National Public Health Service, are among the members of the advisory board and the president of the republic is the honorary president. The details of the new organization were given in the *Revista Medico-Cirurgica do Brazil* which mentions also that S. Paulo has had a Codigo Sanitario for some time, and that it has rendered inestimable services in that district.

LONDON LETTER

London, July 2, 1918.

The Medical Grading of Recruits

In THE JOURNAL, June 1, p. 1618, the grading system of the older recruits aged between 43 and 50, now brought under medical review for the first time, was described. A good deal of concern has been manifested in Parliament and elsewhere as to whether these older men will be given training and duties of which they are capable. Replying to questions in the House of Commons, Sir Auckland Geddes, Minister of National Service, said that the definitions of the grades had been most carefully drawn up. The instructions giving all the conditions that should exclude and the conditions which allow a man to be included in any grade filled twenty-eight pages. The clause had been quoted which said that men who fulfilled the conditions named for Grade I were fit for general service in the army, but there was also the instruction that the physical training of the men was to be carried out under medical supervision. Every man required two indexes to place him in the proper place in the posting chart —his grade and his age. The combination of these settled his place in the "square" and the service he was to render. The actual posting was a matter for the War Office, but it worked closely with the civilian medical board. The only thing that a physician could do was to judge on the physical signs whether a man was reasonably fit for his age. Sir Auckland Geddes admitted that the results of some of the medical boards had given grave cause of anxiety. But a great number of examinations had been made within a short period. A quarter of an hour was allowed for every examination. It was not possible to examine every man in a quarter of an hour, nor was it necessary to examine every man for a quarter of an hour. Many cases could be dealt with in two or three minutes, because the man was either rejected or was obviously of the lowest grade that could become available for service. Men in Grade III of the new age period were not being called on, so that it was not necessary to submit them to an elaborate examination.

Maternity and Child Welfare

Mr. Hayes Fisher, president of the Local Government Board, moved the second reading of the maternity and child welfare bill, by which he proposes to extend the powers of local authorities in England and Wales with regard to motherhood and the care and welfare of the infant population of the country. Similar powers are now exercised by local authorities in Scotland and have been used with considerable success. The objects are proposed to be carried out by a system of maternity and child welfare committees which the local authorities are required to set up. For the administration of the new powers it has been thought advisable that a council should include members to the proportion of about one third who had not been elected but were peculiarly fitted for the work. Among the powers which the local authorities will be able to exercise without stepping outside the law is the provision of crèches, day nurseries and convalescent homes. The Local Government Board also attaches great value to local authorities setting up complete schemes for maternity and child welfare centers.

The Health of Munition Workers

Every effort is made by the government to safeguard the health of munition workers. An elaborate "welfare" scheme, by which voluntary and other workers supervise the conditions of work and the facilities for obtaining food and recreation, has been in force almost since the beginning of the war. Committees have been appointed by the government from time to time to investigate the subject. The latest one had as chairman Sir George Newman, medical chief of the board of education, and included Sir Thomas Barlow, Sir Morley Fletcher, Prof. Leonard Hill, a labor member of Parliament and some large employers. The report states that the environment and conditions of employment of munition workers throughout the country are now vastly better than they were two and a half years ago, though there is still much room for improvement, and further care and attention are essential if a serious breakdown of industry is to be avoided. Among the conclusions of the committee are the following:

Women in Industry: Hitherto there has been no marked breakdown in the health of women workers, but the strain is probably greater than is yet apparent, having been counteracted or disguised by improved food, better factory environment, welfare supervision, and the dropping out of the physically weaker. Many women can keep working only by abandoning all recreation and social intercourse. Shorter hours, medical supervision, careful choice of workers, and other precautions are necessary. Owing to the strain of home claims, married women workers need special attention, especially during pregnancy and while caring for young children. They should be kept on "light" work as far as possible, and some relaxation at the beginning and the end of the day is recommended.

Hours of Labor: In January, 1916, the committee recommended that the average weekly hours of work for men and boys should be limited to 65 or 67, and those of women workers and boys under 16 to 60. Two years' experience shows that even these reduced hours are now too long, and can be substantially reduced without loss of output.

Shifts and Breaks: The three-shift system, especially for women, is recommended; the difficulties of organizing it are ordinarily surmountable. Work before breakfast is a mistake, and many women and young persons cannot profitably be employed for five hours on continuous work. Authorized rest pauses, systematically determined, are desirable, and all workers should be allowed periodic holidays, preferably of several days' duration.

Sunday and Night Work: Sunday labor has been conclusively proved to be unpopular, uneconomical, and not productive of increased output. Night work is uneconomical and unnatural, and among women and girls it should be stopped as soon as it ceases to be essential. Among boys under 16 it should be altogether stopped.

Sickness, etc.: To prevent sickness, the preliminary medical examination provided for in certain works should be extended to all workers, especially when dangerous substances are handled. Periodic reexamination is also necessary. In the case of young persons their school medical records should be consulted. Adequate medical and nursing schemes are necessary. Poisoning in trinitrotoluene works depends to some extent on personal idiosyncrasy. The great majority of workers are insusceptible; those affected are not always the delicate and ill nourished. Protective clothing (essential where dirt, dust, damp, heat or dangerous machinery is involved) is desirable for all workers, and especially for women and girls. Comfortable seats should be provided during meal hours.

PARIS LETTER

PARIS, June 27, 1918.

Regeneration of Bone After Resection

Dr. Leriche of Lyon presented a communication to the Société de chirurgie de Paris recently in which he described an operation for resection of the hip which makes it possible to obtain a regeneration of the femoral neck. A very interesting discussion was held. Dr. Tuffier attributed the good results obtained by Leriche to the fact that he, like all the surgeons of the École de Lyon, used instruments which not only loosened the periosteum but which entered the bone, whereas most surgeons try only to loosen the periosteum. Any resection which is to be followed by bone regeneration must be not only subperiosteal but intraosseous. This procedure is supported by Dr. Quénu, who stated that, theoretically, Ollier had attributed all the regenerative power to the periosteum, when, as a matter of fact, he always left attached to the periosteum a layer of bone cells—*couche osseuse*—and not merely medullary tissue to be detected only with the microscope. Recent research, especially by Dr. Heitz-Boyer, tends to show that bone regeneration will take place only from bone, and that the periosteum, of itself alone, without any bone cells attached to it, is wholly negative from the osteogenetic standpoint. Dr. Mauclaire stated that for several years research made in America has shown that in order to have bone regeneration take place, it is necessary that the periosteum have bone cells adherent to it.

Eventual Evacuation of Paris and Its Hospitals

At this time the eventual evacuation of Paris is being agitated by the press and it appears to occupy a large share of public attention. M. G. Mesureur, director of l'administration générale de l'Assistance publique, has informed the directors of the hospitals of Paris that there is no need for them to give that matter a single thought. Any measures of that kind, in case of necessity, should be directed only to the children and the aged in institutions. M. Mesureur is of the opinion, and justly so, that all hospitals should continue their usual activities in caring for the wounded from the front sent to them by the Service de Santé militaire, as well as for the sick and wounded civilians whose admission cannot be deferred or postponed. It is unfortunate, however, that in his communication to the hospital directors, M. Mesureur said: "First of all, you should by your example show the personnel (physicians, nurses and subordinates that their first duty is to remain at their posts, no matter what the circumstances may be." Dr. G. Variot of the hospice des Enfants-Assistés stated that the doctors in the hospitals did not need to be set an example by the administrative agents of the Assistance publique in order to do their duty. He said: "It is most inopportune to doubt the morale of the medical staff of the hospitals, who do not stand in need of any exhortation when it is a question of dignity, courage and devotion."

Interrupted General Anesthesia

At a recent meeting of the Société de chirurgie de Paris, Dr. Henri Chaput demonstrated a method of anesthesia consisting in the alternate administration and suppression of the anesthetic in the course of the operation. At the beginning of the procedure, the anesthetic (chloroform, ether, ethyl chlorid) is given in a quantity just sufficient to suppress sensibility and all reaction on the part of the patient. The anesthetic is then discontinued and the operation is proceeded with until the patient begins to react in such manner as to interfere with the progress of the work; then the anesthesia is resumed and continued until the patient is again in condition for the surgeon to proceed with the operation, and so on.

The advantages of this method are said to be: The corneal reflex is preserved; the face keeps the normal tint; the pupils are not modified to any extent; the pulse is strong and of good quality; the patient never vomits during the operation; cardiac or respiratory syncope never occur. As soon as the anesthesia is terminated, the patient regains consciousness almost immediately; the face is of good color and the features are calm. There is never any postoperative vomiting, sickness or shock; no icterus; and if it is a case of operation above the umbilicus the patient can get up the same day and go home. Chaput has used this method of anesthesia in more than 100 cases without any untoward accident.

Deaths

Lawrence William Littig, Iowa City, Iowa; State University of Iowa, Iowa City, 1883; University of Pennsylvania, Philadelphia, 1884; M.R.C.S. (Eng.), 1887; aged 59; a Fellow of the American Medical Association, and chairman of the Hospital Section in 1916; president of the Iowa State Medical Society, 1911-1912; president of the Western Surgical Association in 1916; secretary of the Iowa and Illinois District Medical Society; a member of the American Association of Railway Surgeons, Mississippi Valley Medical Association, Medical Society of the Missouri Valley, and many other special societies; professor of anatomy in the State University of Iowa, Iowa City, from 1889 to 1891; professor of theory and practice of medicine from 1891 to 1902, and assistant to the chair of surgery from 1899 to 1902; director of the University Hospital from 1900 to 1902; at one time physician of Scott County; attending surgeon to Mercy and St. Luke's hospitals, Davenport; a surgeon of international repute; died in a hospital in Iowa City, July 16, from septicemia following the bite of an insect.

Luther Dana Waterman, Indianapolis; Medical College of Ohio, Cincinnati, 1853; aged 87; surgeon of the 39th Indiana Volunteer Infantry, and later division medical director in the Army of the Cumberland; one of the founders and for several years professor of anatomy in the Indiana Medical College; secretary of the Indiana State Medical Association, and its president in 1878; a charter member of the Indianapolis Literary Club; who recently gave more than $100,000 for the foundation of the Waterman Institute for Scientific Research at the University of Indiana; died at his home, June 30.

Samuel Logan, New Orleans; Tulane University, New Orleans, 1900; aged 42; a Fellow of the American Medical Association; visiting surgeon to Charity Hospital, New Orleans, senior chief of clinics to surgical department and assistant demonstrator of anatomy in his alma mater; who made several trips to Africa as a medical officer on British transports during the Boer War; died at his home, July 1.

Edward Henry Sholl, Birmingham, Ala.; Pennsylvania Medical College, Philadelphia, 1856; aged 86; a surgeon in the Confederate service throughout the Civil War; a charter member of the Jefferson County Medical Association; at one time professor of medical history in Birmingham Medical College; died at the home of his son in New Orleans, July 13.

Ida Grant Rhoades, Cedar Falls, Ia.; Drake University, Des Moines, Ia., 1896; aged 38; a Fellow of the American Medical Association; for three years secretary of the Society of Iowa Medical Women, and since 1916, secretary of the Blackhawk County Medical Society; died at her home, June 20, from uremia.

William Alexander Packard, Fort Morgan, Colo.; College of Physicians and Surgeons, Keokuk, Ia., 1881; aged 66; at one time a Fellow of the American Medical Association; for several years physician to the Soldiers' and Sailors' Home, Monte Vista, Colo.; died at his home, July 10, from heart disease.

George G. Murray, Bellows Falls, Vt.; University of the South, Sewanee, Tenn., 1901; aged 43; at one time a Fellow of the American Medical Association; a member of the Vermont State Medical Society; a specialist on diseases of the eye, ear, nose and throat; died at his home, July 5, from pneumonia.

William Hunt Hall, New York City; New York University, New York City, 1858; aged 85; at one time a member of the Medical Society of the State of New York; a surgeon in the Confederate service and in charge of a base hospital, at Petersburg, Va., during the Civil War; died at his home, July 8.

John Shiver Wentz, Philadelphia; University of Pennsylvania, Philadelphia, 1864; aged 81; a surgeon of U. S. Volunteers during the Civil War; for many years a leading coal operator; a trustee of the Presbyterian Hospital, Philadelphia; died at his home, July 1.

Gottfried Merkel, New York City; Long Island College Hospital, Brooklyn, 1907; aged 51; attending surgeon to the German Hospital; while on his way in his motor car to make a professional call, July 16, was struck by a fire patrol car, and instantly killed.

Henry Knappenberger, Macomb, Ill.; Rush Medical College, 1881; aged 67; a Fellow of the American Medical

Association and past president of the McDonough County Medical Society; died at his home, July 1, from disease of the gall bladder.

T. N. Sellers, Island Ford, Va.; University of Virginia, Charlottesville, 1854; aged 88; for many years justice of the peace; from 1873 to 1875 a member of the Virginia House of Delegates; died at his home, July 7, from senile debility.

August Helmbold, Newport, Ky.; Eclectic Medical Institute, Cincinnati, 1887; aged 55; a Fellow of the American Medical Association; first mayor of Newport under the commission plan; died at his home, July 9, from nephritis.

Axel Alexander Pesonen, Duluth, Minn.; University of Michigan, Ann Arbor, 1911; aged 38; a member of the Minnesota State Medical Society; died in St. Mary's Hospital, Duluth, July 17, from gangrenous appendicitis.

Clarence A. Warwick, Chicago; Hospital College of Medicine, Louisville, Ky., 1898; aged 45; a veteran of the War with Spain; who later had Philippine service; died at his home, July 22, from heat prostration.

Richard O'Leary, Vicksburg, Miss.; New York University, New York City, 1861; aged 80; surgeon in the Confederate Service during the Civil War; twice mayor of Vicksburg; died at his home, July 2.

Lemon Dwight Washburn, Farmingdale, N. Y.; Albany, N. Y., Medical College, 1906; aged 38; at one time a member of the Medical Society of the State of New York; died at his home, recently.

Paul E. Buchanan, Gary, Ind.; Meharry Medical College, Nashville, Tenn., 1911; aged 33; was found dead beneath his overturned automobile, near Hammond, Ind., July 11.

John C. Hamilton, Seattle, Wash.; Cincinnati College of Medicine and Surgery, 1875; aged 65; for twenty-five years a practitioner of Ithaca, O.; died at his home, July 14.

Philip J. Brady, Hastings, Minn.; Jefferson Medical College, 1909; aged 36; a Fellow of the American Medical Association; died at his home, July 20, from nephritis.

John M. Carter, Jackson Center, Ohio; Cincinnati College of Medicine and Surgery, 1868; aged 79; died in a hotel in Hot Springs, Ark., July 7, from cerebral hemorrhage.

Thorsten N. Kjerland, Webster, S. D.; Hamlin University, Minneapolis, Minn., 1898; aged 57; a Fellow of the American Medical Association; died at his home, June 1.

Herman Olaus Fjelde, Rolla, N. D.; University of Minnesota, Minneapolis, 1895; aged 52; died at his home, July 14, from cerebral hemorrhage.

A. B. McNaughton, Augusta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1887; aged 58; died at his home, June 15.

Henry Neville, Jamestown, N. Y.; Homeopathic Hospital College, Cleveland, 1872; aged 78; died at his home, July 16.

Eli B. Conaway, Centerville, W. Va.; Miami Medical College, Cincinnati, 1874; aged 70; died at his home, July 15.

Henry F. Baker, Yellow Springs, O.; Pulte Medical College, Cincinnati, 1875; aged 72; died at his home, July 19.

William Karniol, New York City; University and Bellevue Medical College, 1902; aged 40; died at his home, July 1.

Marriages

LIEUT. JOHN HARRISON ALEXANDER, M. R. C., U. S. Army, Pittsburgh, on duty at Camp Grant, Rockford, Ill., to Miss Marie Christine Myers of Rockford, Ill., July 10.

CAPT. CHARLES SHEWELL ABBOTT, M. R. C., U. S. Army, Philadelphia, on duty at Fort Riley, Kan., to Mrs. Rhoda M. Stevens, at Salt Lake City, Utah, July 6.

LIEUT. H. F. ALVES, M. R. C., U. S. Army, on duty at Camp Travis, Texas, to Miss Ruby Tracy of Houston, Texas, July 3.

LIEUT. DANIEL MILLIKEN SKINNER, M. R. C., U. S. Army, Hamilton, Ohio, to Miss Bess Eigher of Cincinnati, July 4.

GROVER CLEVELAND BEARD, Kerr, N. C., to Miss Sallie Rebekah Herring of Wallace, N. C., July 2.

THOMAS HUDSON HARTER to Miss Margaretta Laurine Wahl, both of East Brady, Pa., June 19.

GEORGE KINNEY DUNKLEE to Miss Ruth McCaffrey, both of Denver, at Littleton, Colo, February 7.

PAUL JONES to Miss Cordie L. Hall, both of Blue Ball, Ark., June 27.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

ANOTHER MAIL-ORDER FRAUD

The Dr. J. Russell Price Company is Debarred from the Mails

On June 25, 1918, the federal authorities denied the use of the mails to a fraudulent concern known as the "Dr. J. Russell Price Company" of Chicago. This concern was controlled by one Charles E. Cessna, of whom the Chicago *Tribune* said he "at different times in his business career has been a loan shark, patent medicine vendor and land promoter."

The earlier name of the Price concern—"Dr. Joseph Lister & Company"—was abandoned in 1914 when the federal authorities commenced action against it and the business was continued under the name of J. Russell Price. Price, who seems to have been a mere figurehead, claims graduation by the National Medical University, a school that has been defunct for some time and even before it went out of existence was not recognized by the majority of the states in the Union. Price, it seems, is or was one of the vice presidents and directors of the "Liberal Medical Union," an organization of which another vice president and director was Quack Carr of "Peruna" advertising fame.

Cessna was called on to show cause by Dec. 19, 1917, why a fraud order should not be issued against the "Dr. J. Russell Price Company" and "V. Leverne," the latter a "confidential address" under which mail was received by the company. At the request of James T. Lloyd, attorney for Cessna, a postponement was granted to Jan. 16, 1918. At that time Cessna appeared at the Solicitor's Office, Washington, D. C., with Mr. Lloyd and a Mr. Frank McMillin, another attorney. Inspector D. F. Angier of the Chicago Division, who for some years has done valuable work in investigating medical mail-order frauds and who made the investigation of the J. Russell Price concern, was also present and testified as a witness for the government. The hearing took five days. The charges in brief were to the effect that under the names of Dr. J. Russell Price Company and V. Leverne "one Dr. James Russell Price, one Dr. Charles E. Cessna and one Everett G. Cisle were engaged in conducting a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises." Judge Lamar, the Solicitor for the Post Office Department in his memorandum to the Postmaster-General describes fully the facts in the case. To quote in part:

CONTROLLED BY CESSNA

"Dr. Charles E. Cessna who controls this company was the chief promoter of the business of Dr. Joseph Lister & Company of Chicago, Illinois, who were cited to show cause why a fraud order should not be issued against them on Sept. 15, 1914. That case was closed on the affidavit of Dr. Cessna, acting for the Lister Company, to the effect that the business had 'been entirely discontinued and abandoned and will not be resumed at any future date, and that the postmaster at Chicago, Illinois, had been directed to treat as refused all mail addressed to said Dr. Joseph Lister & Company, its officers and agents as such, and to Z. Wiren.' Z. Wiren was the name used by the Lister Company as a confidential address.

"While it is denied by Dr. Cessna that the J. Russell Price Company has continued the business of the Lister Company I nevertheless find from the evidence that this is in substance the case. At the time negotiations were taking place between this office and representatives of the Lister Company for the closing of the case without the issuance of a fraud order on the filing of an affidavit, Dr. Cessna bought control of the J. Russell Price Company, which was a small mail-order medical concern operating from Chicago, and reorganized it into a similitude of the Lister Company, and began sending out circular matter in which it was stated

that the Lister Company was going out of business and that the Dr. J. Russell Price Company was its successor and urging those who had theretofore dealt with the Lister Company to continue their dealings with the Price Company.

"The advertisements and advertising matter of the Lister Company, modified to a slight degree, became those of the Price Company, and the *modus operandi* of the former company with nearly all of its fraudulent features was continued in the Price Company business. Essentially the two schemes differ not at all. Modifications of advertising matter were made in an effort to avoid some of the minor frauds involved in the old case. . . ."

"The one change throughout the matter used by the Price Company, on which Dr. Cessna laid great stress, is the substitution for the word 'cure' of the expression 'restored to health.' A less substantive change in terminology could hardly be imagined. These changes constitute practically all that were made with the exception of a few other immaterial modifications of language. Dr. Cessna was responsible for the representations in both cases.

The "Dr. Jos. Lister & Co." humbug went out of business—under that name—when Cessna, the promoter, was cited by the government to show cause why a fraud order should not be issued against it. This was in 1914. But the business itself went merrily on under the new name "Dr. J. Russell Price Co." Compare the advertisements reproduced above. The one important (?) change consisted in eliminating from the advertising the word "cure" and substituting the expression "restored to health."

A "HIT AND MISS" CONCERN

"The business of the Price Company, like that of the Lister Company, is what has become known as a 'hit or miss' mail-order medical scheme. Advertisements are inserted in newspapers of general circulation through the mails, and particularly in foreign and other newspapers which have a circulation among ignorant and credulous people, in which it is sought to lead the reader to believe that a great number of symptoms of disease set forth therein are amenable to the treatment prescribed by the company, and they are urged to send for a free trial treatment and a booklet further detailing the wonderful results which it is claimed will flow from the use of the alleged remedies prescribed.

"A symptom blank accompanies the booklet and the trial treatment. This symptom blank, which is a printed question blank the same in every case, contains a great number of queries under different headings, such as, 'inherited or constitutional diseases,' 'stomach disorders,' 'kidney or bladder disorders,' 'prostatic irritation and inflammation,' etc. There are a great number of questions on this blank but few under each division, and while they are of a character that might be helpful to a physician in making a diagnosis the evidence shows clearly that they are not such as when taken alone would enable a physician to determine which of a great number of diseases the patient was afflicted with. Nevertheless on the basis of the answers to these questions Dr. Cessna undertakes to 'restore to health' those induced to correspond with him."

It was shown at the hearing that the expressions used by the J. Russell Price concern in its advertising described either symptoms of disease or groups of diseases; that the symptoms are such as arise in a great many different conditions which it is impossible to differentiate by means of a symptom blank such as the concern used; that in order to determine what treatment would be applicable to any particular case, it was necessary to take into consideration many other things such as the condition of the blood, of the urine, respiration, temperature, etc., and that any alleged diagnosis made on the basis of answers to questions that were uniform in all cases would reveal practically nothing and that the prescribing of treatment on such information would, in the vast majority of cases, fail to relieve the patient. Judge Lamar's memorandum continues:

KNOWINGLY FRAUDULENT

"That Dr. Cessna well knew the fraudulent character of this enterprise is clear from his testimony at the hearing. He admitted on cross-examination in substance that his endeavor after the Lister case had been before the Department was to eliminate what he thought the Department would object to without reference to the truth or falsity of the representations made. The whole object of the man as clearly revealed at the hearing was to go as far as he could in continuing the fraudulent business of the Lister Company and eliminate only such minor features as he felt might give rise to complaint and bring him again before the Post Office Department.

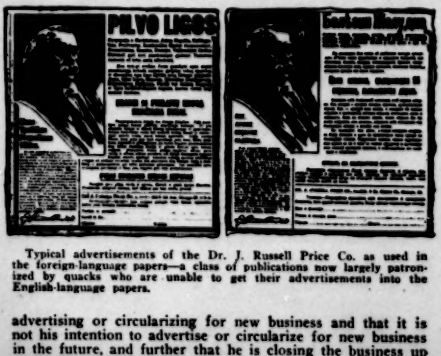
"The fact that Dr. Cessna is a physician makes his offense all the more flagrant. From his medical education he must know that this method of treating disease is entirely impracticable and that the representations he makes in pursuance of the scheme are without any scientific foundation."

In defense, Cessna showed that in some instances specimens of urine and of blood were called for and were sent to a laboratory for examination. The value of the urinalysis which Cessna caused to be made was shown by a test case conducted by Inspector Angier in which, in response to a call for a sample of urine, he sent to the J. Russell Price Company a mixture of water, albumin, pepsin, sodium chlorid and hydrochloric acid slightly colored. The specific gravity of this mixture was 1.020. The "analysis" showed the specific gravity as 1.030, and declared further that there was 1.6 per cent. of urea, no albumin, chlorids or phosphates! The memorandum says further:

"The name V. Leverne is used as a so-called confidential address.

"At the time of the issuance of the citation the postmaster's report showed the receipt by the company of 400 letters on an average daily.

"Through his attorney, Mr. Lloyd, Dr. Cessna has just submitted an affidavit to the effect that he has discontinued all



Typical advertisements of the Dr. J. Russell Price Co. as used in the foreign-language papers—a class of publications now largely patronized by quacks who are unable to get their advertisements into the English-language papers.

advertising or circularizing for new business and that it is not his intention to advertise or circularize for new business in the future, and further that he is closing the business up and will within the next few months have it finally wound up and disposed of. As he is still obtaining remittances on the strength of the advertisements heretofore used, and as in view of his actions in the past no faith can be accorded to Dr. Cessna's promises as to his future conduct, I do not believe that the filing of this affidavit warrants the withholding of my recommendation for the issuance of a fraud order in this case."

As a result of this recommendation, the Postmaster-General closed the mails to the Price concern.

Correspondence

"OASES IN THE NATIONAL DESERT"

To the Editor:—Your editorial comment in THE JOURNAL, July 20, "Oases in the National Desert" seems especially pat here, as our town has just buried a man who bought six bottles of a beef, iron and wine preparation (19 per cent. alcohol), went up the river with a comrade in a boat and did not return until the river had been dragged for some eight or ten hours. If our government desires to make effective prohibition of alcoholic liquors for conservation of food or other reasons, it would seem that it must take into consideration the "patent medicine" evil.

H. H. LOVELAND, M.D., Republic, Mich.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE ARMY SCHOOL OF NURSING

To the Editor:—Please give me the following information concerning the Army School of Nursing: 1. What are the essentials of eligibility, such as educational prerequisites, etc.? 2. To whom is application for admission made? 3. What is the extent of the course and the amount of training given? 4. Will those completing the course qualify as graduate nurses? 5. Will those taking trainiig have to bear their own expenses? 6. What salary is paid after completion of the course?

C. MAX ANDERSON, M.D., Manteno, Ill.

ANSWER.—1. A candidate must be between 21 and 35 years of age, single or a widow, in good physical condition and of good moral character. She must be a graduate of a recognized high school or present evidence of an educational equivalent.

2. Candidates should make application to the Surgeon-General of the Army in person or in writing or through the Division Directors of the Bureau of Nursing of the American Red Cross, who may be addressed as follows:

New England Division, 755 Boylston St., Boston.
Atlantic Division, 44 East 23d St., New York
Pennsylvania Division, 1601 Walnut St., Philadelphia
Potomac Division, 930 Sixteenth St., N. W., Washington, D. C.
Southern Division, 424 Healy Bldg., Atlanta, Ga.
Lake Division, 929 Garfield Bldg., Cleveland
Gulf Division, Post Office Bldg., New Orleans
Northern Division, 202 Essex Bldg., Minneapolis
Central Division, 180 N. Wabash Ave., Chicago
Southwestern Division, 1617 Ry. Exchange, St. Louis
Mountain Division, 14th and Welton Sts., Denver
Northwestern Division, White Bldg., Seattle
Pacific Division, 942 Market St., San Francisco

The candidate should make application to the division director nearest her place of residence.

3. The Army School of Nursing, located in the Surgeon-General's Office, Washington, D. C., offers to women desiring to care for sick and wounded soldiers a course leading to a diploma in nursing if the military hospitals—in which the training will be given—continue in operation for the full period of the course. Should the cessation of hostilities occur before the completion of this period, credit for all branches of nursing completed will be given in a certificate by the Army School of Nursing that will entitle the holder to recognition by such civil training school as she may subsequently enter as a student.

The course extends over a period of three years. A credit of nine months, or approximately an academic year, will be given to graduates of accredited colleges, and credit of three or more months to students who have had two or more years of work in college or in approved technical schools that have included prescribed courses in the sciences. The course will be divided into a preliminary term of four months, which is also a probationary period, a junior year of eight months, an intermediate year of twelve months and a senior year of twelve months. A vacation of one month for each year in the school will be granted. Lectures, recitations and laboratory work will be given in the required subjects, and hours of duty on the ward will be arranged in accordance with the required class work. The military hospitals will provide experience in surgical nursing, including orthopedic, eye, ear, nose and throat work, and medical nursing, including communicable, nervous and mental diseases. Experience in the diseases of children, gynecology, obstetrics, and public health nursing will be provided through affiliations in the second or third year of the course.

Special consideration will be given to those who have taken the course in elementary hygiene and home care of the sick under the auspices of the American Red Cross, and such candidate should request application blanks from the division directors of the Bureau of Nursing or the instructors of the course in elementary hygiene and home care of the sick.

Candidates will be admitted in accordance with the needs of the service, the first class beginning about July 1, 1918.

The subjects included in the preliminary course will be: anatomy and physiology, applied chemistry, bacteriology, personal hygiene, hospital housekeeping, nutrition and cookery, drugs and solutions, elementary nursing principles and methods, bandaging, and the historical, ethical and social bases of nursing. The subjects following the preliminary course will include: materia medica and therapeutics, diet in disease, massage, surgery, orthopedics, diseases of the eye, ear, nose and throat, operating room technic, general medicine, communicable diseases, occupational, venereal and skin diseases, nervous and mental diseases, diseases of infants and children, gynecology and obstetrics. Public health nursing, social service and other subjects relating to the problems of the several fields of nursing and modern social conditions will be considered in the third year.

4. Yes.

5. No tuition fee is demanded. Students will be provided with board, lodging, laundry and textbooks during the course; but they will be required to provide themselves with indoor uniforms for the preliminary course, and on its completion, with an outdoor uniform and such additional indoor uniforms as are necessary during their residence in the school. Fifteen dollars a month is allowed to meet these and other school expenses, except for the period of affiliation.

6. On completion of the course the students will become members of the regular Army Nurse Corps in the order of the vacancies; in case there are no vacancies, they will be placed on the list for appointment as vacancies occur. These nurses receive $50 a month in the United States and $60 a month abroad.

DOSAGE OF VARIOUS SALTS OF QUININ

To the Editor:—In using quinin for malaria, is there much or any difference in the quantity of quinin alkaloid carried in the different salts? For instance, what size dose of the hydrochlorate or bisulphate would equal (in actual quinin) a 10 grain dose of the sulphate?

W. D. WHELESS, M.D., Rayville, La.

ANSWER.—We give below a brief table comparing the dosage of the various salts of quinin about which our correspondent makes inquiry. It will be noticed that the difference in dosage when based on that of the U. S. Pharmacopeia quinin is not very great. In fact, we find on comparing all the ordinary salts of quinin of the U. S. Pharmacopeia and New and Nonofficial Remedies, that the greatest difference is between quinin and quinin bisulphate. It may be of interest to note that there are two hydrochlorids of quinin now official. The dihydrochlorid is much more soluble but contains almost exactly the same percentage of quinin as the ordinary hydrochlorid.

	Quinin, Per Cent.	If Dose of U. S. P. Quinin is 10 Grains
Quinin, U. S. P. (contains $3H_2O$)	85.71	10.00
Quinin hydrochlorid, U. S. P.	81.72	10.49
Quinin dihydrochlorid, U. S. P.	81.63	10.5
Quinin bisulphate, U. S. P.	59.12	14.5
Quinin sulphate, U. S. P.	74.33	11.54

This gives direct comparison of dosage on the basis of a 10 grain dose of official quinin. The comparison on the basis of a 10 grain dose of the sulphate is obviously almost the same.

INFORMATION DESIRED CONCERNING A VOCATIONAL SCHOOL FOR THE PARALYZED

To the Editor:—Please inform me if you know of any institution or school to which a young man with a paralysis following a poliomyelitis may be sent to learn some trade or vocation.

H. A. A.

ANSWER.—If any of our readers who know of such an institution will notify THE JOURNAL, we will forward its name to our correspondent.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.
HAWAII: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.
IOWA: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Book Notices

DIETOTHERAPY. Chemistry and Physiology of Digestion, Classification and Analysis of Foods. By William Edward Fitch, M.D., Major, Medical Reserve Corps, U. S. Army, Attending Physician to the Vanderbilt Clinic, College of Physicians and Surgeons, New York City, and forty contributors. Published with the permission of the Surgeon-General of the Army. Three volumes. Cloth. Price, $21 net. New York: D. Appleton & Co., 1918.

These volumes: the first, on the "chemistry and physiology of digestion, classification and analysis of food"; the second, on "nutrition and diet in health," and the third labeled "nutrition and diet in disease," bear the imprint "published with the permission of the Surgeon-General of the Army." It would be unfortunate if any one were thereby led to believe that they were presented to the medical profession at the request of any department of the government; for it is assuredly surprising to find that they fall far short of representing the best that may be expected of writers in America, which has contributed so splendidly to the science of nutrition in recent years. It is an occasion for regret to find so much that is mediocre in a work that promises so much. We suspect that if reviewers were to confine their attention to some of the chapters of Volume I, on the chemistry and physiology of digestion and the properties of foods, the reaction on the publishers might be decidedly unfavorable. The contrast between the voluminous discussions in some of the earlier chapters and such a modest yet excellent book as Professor Sherman's "Chemistry of Food and Nutrition" or even the semipopular volume "Feeding the Family," by Mrs. Rose, leaves a feeling of regret at the failure to attain a higher standard in the larger effort.

In a measure these volumes represent reviews and excerpts from other writers on diet. In this way much that is "ancient" is handed down in the familiar unprogressive manner of commonplace textbook writing. Thus the authority of Liebig is presented for an attempt at a classification of foods. We read the inexact statement that "protein foods are noncrystallizable" (I, 56), and that "all starch molecules contain a certain proportion of nitrogenous material," etc. (I, 57)—specimens of inexcusable or slipshod comments that might be quoted in considerable numbers. Students of the present century will be astonished to find standard quantitative data expressed in *grains*, as for example: "The amount of nitrogen required . . . averages 300 grains" (I, 231), or "a daily requirement of about 360 grains of the inorganic salts" (I, 258), or again of "3,000 grains of sodium chlorid" (I, 256). In a chapter (I, Chapter V) on the processes of digestion in the alimentary tract, the digestive changes in the intestine seem to have been forgotten amid the rest of the somewhat confused discussion. Despite details about body components and food make-up, the classic researches of Jones and of Levene on the nucleic acids and their derivatives are entirely overlooked, though terpenes and aldehyds are discussed among the foodstuffs. E. E. Smith is quoted as authority for the statement that "the simple amino acid formed in the intestinal tract from protein breakdown are absorbed as such," etc. (II, 169), without mention of the pioneer discoveries in this important field. In the discussion of starvation (cf. II, chapter V), the classic investigations of the Boston Nutrition Laboratory of the Carnegie Institution find no reference amid the quotations from less carefully controlled records. A chapter discussing acidosis in detail scarcely mentions the noteworthy scientific work of distinguished American investigators in this field. No reference whatever is made to their names in the bibliography. One could fill a page with errors of statement, as, for example, the classification of "uric, hippuric and other radicles produced by catabolism or by fermentation" among inorganic substances (I, 55); the statement that "water absorbed in the intestine is rapidly passed into the lymphatics" (I, 249); that "water taken in moderate quantities acts as a diluent of the blood" (I, 251), or that "meat is one of the most important foods since *it is from animal flesh that the muscular part of the body derives its sustenance*" (I, 277). We are left to wonder how vegetarians ever survive the lack of animal flesh in the diet!

There are, furthermore, not a few extravagant statements to be found. Thus we are told dogmatically that "vitamines are the mother substances of ferment and hormones" (I, 378); that bananas develop an odor of amyl nitrite and "occasionally produce mild symptoms of vascular dilation"; that asparagus contains an "active principle," asparagin, which is an "arterial and nerve sedative," whatever that may imply to the uninitiated. For some undiscoverable reason the word "hydrocarbons" is used to designate fats in distinction from carbohydrates (I, 64, 92; II, 100). Obscure statements are also not lacking; thus, we are told "that a small amount of protein *in excess of the daily requirement for needed calories* may be stored" (II, 102), leaving the critical reader to his own devices of interpretation. The carelessness of chemical statements is further exemplified by the pronouncement that "the proteins differ from other foodstuffs in containing nitrogen, sulphur and phosphates" (sic) (I, 233). The statement that in "torpor of the liver"—this sounds like a "patent medicine" advertisement of a generation ago—"as the name denotes, the organ is tardy in performing its normal functions and has a tendency to become choked with bile, glycogen and urea" (III, 180) is almost humorous A. D. 1918. So is the platitude that "the mouth is an oval box situated at the beginning of the alimentary tract" (I, 108). Why rehearse such stuff to modern physicians? Why reiterate the properties of pure water? There is a pathetic humor in the comment on the functions of the bile: "Another property of this excrementitious biliary fluid is a medium for the separation of the excess of carbon and hydrogen from the blood, particularly during intra-uterine life" (I, 119, 120). It reads like the monographs of a century ago, and the editor tells us soberly that "as bearers of electricity the mineral elements dominate the whole course of metabolism" (II, 358).

The preface recommends the bibliographies following each chapter "for the convenience of those who may wish to go deeper into the subject." This sounds admirable; but how can the enthusiast for learning at firsthand be expected to find references such as the following selected from dozens of equally useless titles: Maxwell, Bio-Chem. J., Liverp.; Kraus, Ztsch. f. diätet. u physik. Therap.; Woodruff, J. Am. Cavalry Assn.; Auer, J. Am. Med. Assn.; Lane and Catherwood (no other data are given); etc. Authors' and typographic errors abound everywhere. A textbook of physiology is attributed to Isaac A. Abt (I, 251). A paper published in 1911 is credited to Liebig (I, 104). Urticaria is alleged to be due to histarium (histamin?), (III, 613). Among phospholipins such novelties of misspelling as cuerin, sphingomylin and jecavin are found (I, 100). Woodyatt, Kunkel, McCollum and Prausnitz are cited as Woodgat, Kimbel, McCallum, and Pransintz. Some of the lists of references as given look almost like printers' pi to one familiar at first hand with medical literature. The multiplicity of such errors is inexcusable.

Enough has been indicated to show the lack of up-to-date treatment in many of the chapters. Some of them are essentially cyclopedic in character, useful for reference rather than for continuous reading. Little effect seems to have been made to prepare analytic summaries of recent date. The table of the composition of meat products, for instance, dates back to 1891 (I, 288), although numerous recent statistics of this sort are easily available. There is an unpardonable amount of repetition. One diagram of Benedict's respiration apparatus is printed in three different places. Statements about the food requirements of man are reiterated over and over. Many of

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the tabulated data on the composition of foods are also duplicated unnecessarily (e. g., I, 273; III, 501, both somewhat out of date). Various contributors have seemingly written with little concern for the other collaborators; and the editor has often rehearsed their findings anew. Hypothetic vitamins are drawn on for much help—to assist digestion (III, 290), cure tuberculosis (I, 279), etc., without due critical consideration. Formidable words are conspicuous; witness trophology, trophodynamics, bradyphagia, etc.

In the third volume, dealing more largely with dietotherapy proper, a greater latitude of opinion is to be expected where tradition and clinical experience have so long acted as guides to feeding. Nevertheless we hesitate to accept as wise the recommendation of five meals followed by two bottles of lager beer (III, 143) as an exemplary dietary in cases of constipation; nor can we agree to the continuance of the old fashioned prescription of fashionable bottled waters, sold at high prices, as essential to good dietotherapy. Why continue the fetish of "brandy diluted with Apollinaris or Vichy" (III, 160) or of "milk diluted with White Rock or Apollinaris" for liver chills (sic) (III, 173)?

The impression must not be conceived that there are no commendable chapters in these volumes. Forty contributors ought to produce something worth while. The parts on bacteria, by Kendall; on foods, by Jaffa; on cookery, by Grindley; the pages on infant feeding; the collected list of hospital diets now in use; the rationing of the Army, as well as the final summary for ready reference, are among the better sections. The indispensable Atwater-Bryant tables of the composition of foods are reprinted.

The justification for an attempt to do better what von Leyden's Handbuch accomplished so well for its generation has been expressed well by Grindley, (II, 51).

> While the physician need not be a cook, he should understand the general methods of preparing foods, and he should know the ingredients of common dishes just as thoroughly as he knows the meaning of galenical terms and the ingredients of tinctures, compound powders, pills, etc. If he is ignorant of the composition and proper preparation of foods, he cannot intelligently supervise the diet of his patients. He should study dietetics exactly as he studies the Pharmacopoeia or a work dealing with pharmacognosy or materia medica, not that he need master the art either of cookery or pharmacy, but that he may have an intelligent, general comprehension of both subjects

To assist in this commendable program we need not more, but better books; not massive systems of conglomerate contributions, but compact monographs by competent writers.

BIPP TREATMENT OF WAR WOUNDS. By Rutherford Morison, Professor of Surgery, Durham University. Price, $1. Pp. 72, with 9 illustrations. New York: Oxford University Press, 1918.

"This small book has been written by request as a war contribution," says the author, "and in it I have endeavored to avoid two difficulties which I feared. The first concerned an explanation of our results which I knew would plunge me into ventures from which I could not escape unscathed; the second was to avoid any overestimation, from excess of enthusiasm, of the value of this method of wound treatment." To one who reads the book—one of a series of "war primers"—it is evident that the foregoing thoughts of the author have guided him in this abstract of his previous publications. The book is well written and the subject matter is presented clearly but tersely. It deals, of course, with his bismuth iodoform paraffin paste, the use of which has been frequently mentioned in THE JOURNAL.

WHAT MEN LIVE BY AND OTHER TALES. By Leo Tolstoi. Translated by L. and A. Maude. Boards. Price 25 cents. Pp. 66. Boston: The Stratford Company, 1918.

STORIES OF THE STEPPE. By Maxim Gorki. Translated by Henry T. Schnittkind and Isaac Goldberg. Boards. Price 25 cents. Pp. 59. Boston: The Stratford Company, 1918.

These booklets are the most recent issued by the Stratford Company in their twenty-five cent series of classics. The selection has been excellent and the translations are quite worthy of the originals. In these days when Russia is in the limelight an acquaintance, even though not intimate, with Russian classics is almost a necessity to some understanding of the minds of the Russian people.

Medicolegal

Exception as to Physicians in Law Against Prevention of Conception

(People v. Sanger (N. Y.), 118 N. E. R. 637)

The Court of Appeals of New York, in affirming a conviction of the defendant of violating Section 1142 of the Penal Law, holds constitutional that section which, among other things, makes it a misdemeanor for a person to sell or give away or to advertise or offer for sale any instrument or article, drug or medicine for the prevention of conception, or to give information orally, stating when, where or how such an instrument, article or medicine can be purchased or obtained. It was argued that if this law was broad enough to prevent a duly licensed physician from giving advice and help to his married patients in a proper case, it was an unreasonable police regulation, and therefore, unconstitutional. The court says there were two answers to this suggestion. In the first place, the defendant was not a physician, and the rule applies in a criminal as well as a civil case that no one can plead the unconstitutionality of a law except the person affected thereby. Secondly, by Section 1145 of the Penal Law, physicians are excepted from the provisions of this act under circumstances therein mentioned. This section reads:

> An article or instrument, used or applied by physicians lawfully practicing, or by their direction or prescription, for the cure or prevention of disease, is not an article of indecent or immoral nature or use, within this article. The supplying of such articles to such physicians, or by their direction or prescription, is not an offense under this article.

This exception in behalf of physicians does not permit advertisements regarding such matters, nor promiscuous advice to patients irrespective of their condition, but it is broad enough to protect the physician who in good faith gives such help or advice to a married person to cure or prevent disease. "Disease," by Webster's International Dictionary, is defined to be:

> An alteration in the state of the body, or of some of its organs, interrupting or disturbing the performance of the vital functions, and causing or threatening pain and sickness; illness; sickness; disorder.

Evidence and Questions for Jury in an Action for Malpractice

(Swanson v. Hood et ux. (Wash.), 170 Pac. R. 136)

The Supreme Court of Washington reverses for error in the trial of this case a judgment for $3,000 that was entered in favor of the plaintiff, who sued the community composed of defendant Hood and wife, charging malpractice and negligence on the part of the former, who was called to set the plaintiff's arm after the plaintiff had broken both bones of his right forearm while cranking an automobile. The court says, among other things, that there is an obvious distinction between a claim of negligence in the choice of methods of treatment and a charge of negligence in the actual performance of the work of treatment after such is made. As to the first, the charge is refuted as a matter of law by showing that a respectable minority of expert physicians approved of the method selected, thus taking the case from the jury. As to the second, a charge of negligent performance, when there is any evidence tending to show such negligence, the case is for the jury, as in other cases of negligence, whenever on the evidence the minds of reasonable men might differ. The court thinks the case here fell within the latter category. There was evidence that the defendant admitted to the plaintiff, the plaintiff's wife, his mother-in-law and his clerk that he drilled the holes in the bone too large for the screws used in placing the plate, and for that reason wrapped the plate and bone with a wire, and that the wire caused the trouble. There was also evidence that in removing the wire the defendant had used great force, and in removal of the plate, splinters of bone were pulled away. True, this use of excessive force was controverted by the defendant and some of his witnesses, but the conflict made a question for the jury. The defendant himself testified that he and other physicians thereafter advised curettement because a roentgenogram showed a delayed union.

The jury might have inferred from the evidence that the force used in removing the wire was in itself sufficient to destroy any incipient union that might have existed, and thus caused the final failure of the bone to unite. Aside from any expert evidence on the subject, such an inference might reasonably be drawn by any man of common understanding. These things presented questions of negligence pure and simple, and were for the jury. They were not questions relating to the discretion of the physician in his choice between recognized methods of treatment. The evidence would have warranted an instruction categorically taking from the jury the question of negligence in resorting to the Lane plate method and limiting this phase of the question to negligence in the manner in which that method was employed or performed.

The court is further of the opinion that the question of contributory negligence was also one for the jury. Though there was evidence that the plaintiff used his arm in driving his automobile and in working about his store, he himself contradicted these charges. Moreover, there was some evidence that the defendant recommended a moderate use of the arm, and himself at different times took hold of the plaintiff's hand and rotated the forearm. On such a conflict of evidence no court would be warranted in holding the plaintiff guilty of contributory negligence as a matter of law.

When a final bad result of any sort of operation is sought to be accounted for by expert opinion, the question should include everything in evidence which could reasonably contribute to that result. It was error not to include in a hypothetic question touching the infection reference to the physical condition of the patient when there was evidence that at the time he was suffering from a bronchial trouble which might have accounted for the infection of the wound. The evidence being uncontradicted that all of the instruments, materials and accessories used in the operation were surgically clean, an instruction should have been given taking from the jury the question of the defendant's responsibility for the primary infection of the forearm. If the criterions by which a witness measures the defendant's treatment are those of the defendant's own school, the witness is not disqualified merely because he belongs to another school.

Physical Examination of Plaintiffs

(Kennedy v. New Orleans Railway & Light Co. (La.), 77 So. R. 777)

The Supreme Court of Louisiana holds that, in a civil action in damages for personal injuries, the trial judge has no authority to require the plaintiff to submit to a physical examination by experts to be called as witnesses for the defendant. On the other hand, the jury and trial judge cannot reach a legal verdict and judgment against the defendant in such case on an ex parte or one-sided version of injuries of the nature and character of which only the plaintiff and the witnesses selected by the plaintiff are permitted to become informed; for, if the defendants in such cases can be condemned on that basis, they will be at the mercy of the plaintiffs, who have only to complain of injuries not visible outside of their clothing, produce themselves and their own selected witnesses to testify to them, and sit tight, with no fear of possible contradiction. Such a proceeding, however, fails to furnish the principal element in due process of law, namely, a hearing, and ordinarily would be dismissed, since a court cannot well place a value on ex parte testimony.

Society Proceedings

COMING MEETINGS

American Academy of Ophth. and Oto-Laryn., Denver, Aug. 6-8.
Am. Assn. of Electro-Therapeutics and Radiology, Boston, Sept. 10-12.
Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
Am. Roentgen Ray Society, Ft. Oglethorpe, Ga., Sept. 4-6.
Indiana Medical Association, Indianapolis, Sept. 25-27.
Minnesota State Medical Association, Duluth, Aug. 28-30.
Missouri Valley Medical Society, Omaha, Sept. 19-20.
Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
Tri-State District Medical Society, Madison, Wis., Aug. 20-22.
Utah State Medical Association, Salt Lake City, Sept. 10-11.
Wyoming State Medical Society, Casper, Aug. 1.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago
July, 1918, **16**, No. 1

1 *New Microbody Found in Blood in Case of Myelogenous Leukemia; Efficacy of Arsphenamin. I. Inaba and S. Ohashi, Muhden, South Manchuria.—p. 1.
2 *Macewen's Sign in Poliomyelitis. J. G. Regan, Brooklyn.—p. 13.
3 *Value of Vaccines in Pertussis. L. H. Barenberg, New York.—p. 23.
4 *Use of Pertussis Vaccine Controlled by Complement Fixation Test. E. J. Huenekens, Minneapolis.—p. 30.
5 *Protective Therapy for Varicella; Its Pathogenesis. A. F. Hess and L. J. Unger, New York.—p. 34.
6 Energy Metabolism of an Amaurotic Family Idiot. F. B. Talbot, Boston.—p. 39.
7 Combined Temperature, Weight, Food, Symptom, etc., Record Chart for Pediatric Work. H. J. Gerstenberger an H. O. Ruh, Cleveland.—p. 44.
8 *Is Amount of Calcium Usually Given in Dilutions of Cow's Milk Injurious to Infants? L. E. Holt, A. M. Courtney and H. L. Fales, New York.—p. 52.

1. **Microbody in Leukemia.**—A case is reported by Inaba and Ohashi of acute myeloblastic leukemia accompanied by chloroma-like tumor growths in the skull, occurring in the course of the disease. Arsphenamin was used in three injections, which resulted in an astonishingly good effect in causing the cessation of all of the leukemic symptoms, with the exception of the gradual enlargement of the tumors. The improvement in the blood findings was very remarkable. In consequence of the arsphenamin treatment, a great number of peculiar microbodies made their appearance in the blood. The nature of these bodies was not determined, but it is considered justifiable to regard them as a new variety of parasitic micro-organism of a certain pathogenic significance in this case of leukemia.

2. **Macewen's Sign in Poliomyelitis.**—During the 1916 epidemic of poliomyelitis Regan tested the value of this sign in 1,798 cases. It was present in all cases seen in the preparalytic stage of the malady, and was usually of a marked degree. It was also extremely frequent in the early paralytic period of the disease, being present to some extent in over 80 per cent. of the patients, and in some cases, especially of the respiratory type, it persisted for as long as from three to eight weeks after the onset. The degree of the positive sign was usually proportionate to the pressure and quantity of spinal fluid removed on lumbar puncture. If Macewen's sign was marked, the fluid was usually under marked pressure, spurting from the needle as soon as the stilet was withdrawn, while if it was slight the fluid would merely flow away rapidly. The relation between the positive sign and the quantity of fluid removed was more easily proved. It was not uncommon to see distinct evidence of pain exhibited on percussion of the skull. Thus, if the examination was carried on while a child was sleeping, he would frequently awaken and begin to cry; or in a stuperous case, the percussion would often arouse the patient to such an extent that he would show evident disapproval of its further use. In children old enough to talk, it was common to have them say that their head hurt and ask to be let alone.

3. **Vaccines in Pertussis.**—As a result of the use of vaccines in an epidemic of pertussis we are led to about the same conclusions which Hess reached in 1914 following a similar therapeutic test. It would seem almost certain Barenberg concludes that pertussis vaccine, given even in large dosage, not only has no curative effect, but does not tend to lessen the severity of the disease. As regards the prophylactic value of pertussis vaccine, the case is different. In both the former epidemic and in this one the percentage of vaccinated children who developed the disease was considerably less than of those who were not vaccinated.

4. **Complement Fixation Control of Pertussis Vaccine.**—Huenekens claims that pertussis vaccine from 2 to 3 months old, employed in very large doses, 1 billion and over, immunizes in only 12.5 per cent. of cases. Two to 4 weeks old vaccine confers immunity in from 25 to 75 per cent. of cases.

Freshly prepared vaccine, employed in the same dosage, shows evidence of antibody formation in 94 per cent. of cases. When used in still larger doses, 1, 1½ and 2 billion, 100 per cent. positive reactions are obtained. The antibodies are demonstrable within one week after the last injection. Huenekens believes that the following conclusions, therefore, seem warranted: Pertussis vaccine should be employed only when freshly prepared and without preservative. By fresh vaccine is meant a vaccine less than 1 week old. The most effective dosage is 1 billion, 1½ billion and 2 billion, given on alternate days, for three doses. It is most effective as a prophylactic, but should be of great value in the early catarrhal stage of pertussis. In doubtful cases of pertussis the vaccine should be administered before an exact diagnosis can be made, especially during an epidemic or where there is a history of previous exposure.

5. **Therapy for Varicella.**—Hess and Unger injected the contents of the vesicles intravenously. The technic was as follows: In each instance only vesicles, and not pustules, were made use of; the surfaces were very gently washed with sterile salt solution and the contents allowed to ascend into capillary tubes. As much as possible of the clear fluid was obtained and was immediately mixed with sterile normal salt solution. This diluted virus was diluted still further with salt solution before it was injected. The dosage was entirely empiric, three-quarters inch, as measured in the capillary tube, was used in each instance. In all, thirty-eight children, about 3 or 4 years of age, were vaccinated intravenously after this method. None of the children developed any local or general signs, or any eruption suggestive of varicella. They were all, in the course of the epidemic, unavoidably in contract with one or more cases of chickenpox, but in spite of this proximity only one developed the disease, this one thirty-six days after the date of inoculation. It is evident, therefore, that by means of these intravenous vaccinations almost absolute immunity was brought about, and no symptoms of the disease.

8. **Calcium of Cow's Milk.**—The authors are of the opinion that it is yet to be demonstrated that infants fed on simple dilutions of cow's milk do not retain an adequate amount of fat, when the stools are formed or semiformed and soapy; nor do they think that a high calcium intake necessarily causes a large fat loss in the feces; while a great reduction of the calcium in the food of infants may be attended with considerable risk.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

July, 1918, **78**, No. 1

9 Overlapping of Fascia of Posterior Vaginal Wall for Cure of Rectocele. D. Bissell, New York.—p. 1.
10 Case of Paragenital Teratoma. L. W. Strong, New York.—p. 5.
11 Nonpuerperal Pelvic Infection. E. J. Ill, Newark, N. J.—p. 11.
12 *Mortality among Women from Causes Incidental to Childbearing. L. I. Dublin, New York.—p. 20.
13 Treatment of Benign Tumors of Breast. J. B. Deaver, Philadelphia.—p. 37.
14 Prevention of Mastitis. R. C. Norris, Philadelphia.—p. 46.
15 Treatment of Mastitis. W. R. Nicholson, Philadelphia.—p. 52.
16 Anomalies of Mammary Secretion. T. S. Westcott, Philadelphia. —p. 55.
17 Case of Papillary Cystadenoma of Ovary; without Recurrence After Seven Years. J. Corcia, New York.—p. 62.
18 Hospital Standardization and Its Application to Organization of Special Hospital. G. G. Ward, Jr., New York.—p. 65.
19 Papillomatous Cysts of Ovary; Report of Eleven Cases. L. S. Schwartz, Brooklyn.—p. 79.
20 Inventory of Gynecologic Clinics. F. C. Holden, Brooklyn.—p. 93.
21 Most Efficient Means of Preventing Infant Mortality. W. L. Putnam, Boston.—p. 103.

12. **Mortality from Causes Incidental to Childbearing.**—In this investigation there were recorded in all 10,056 deaths from the diseases and conditions incidental to childbirth in the age period 15 to 44 years. This covers the six-year period from 1911 to 1916, inclusive. These deaths, when related to the 14,694,260 women exposed, correspond to a death rate of 68.4 per hundred thousand women at these ages. Of the total deaths, 8,288 occurred among white females and 1,768 among colored females; the rates per hundred thousand for the two races, being 66.1 to 82.3 for the white and colored women, respectively. It is thus shown at the outset that colored females suffer much more seriously than do white women from the diseases and conditions incidental to childbearing. The 10,056 deaths were due to a considerable number of diseases and conditions complicating or characteristic of the puerperal state. The most important of these is septicemia, which alone was responsible for 4,321 deaths, or 43 per cent. of the total. This condition was followed in numerical order, by albuminuria and convulsions with 2,654 deaths, or 26.4 per cent. of the total. Together, these two definite conditions account for 69.4 per cent. of the puerperal cases, but it is realized that the actual proportion is even higher. Many deaths from septicemia and albuminuria are unfortunately still reported under the disguise of one or another title which results in their assignment to other of the puerperal conditions and in fact to other conditions not puerperal at all.

American Journal of Ophthalmology, Chicago

July, 1918, **1**, No. 7

22 War and Night Blindness. M. Danis, Brussels, Belgium.—p. 465.
23 Whip Cracker Injury of Eye; Report of Three Cases. E. B. Heckel, Pittsburgh.—p. 468.
24 Concomitant Movements, Especially of Upper Eyelid wth Suction. C. Zimmermann, Milwaukee, Wis.—p. 473.
25 Etiologic Factors in Epidemic of Acute Conjunctivitis at Camp Sherman. W. E. Kershner.—p. 480.
26 Defects in Education for Ophthalmic Practice. E. Jackson, Denver.—p. 482.
27 Computation of Compensation for Ocular Injuries. H. S. Gradle, Camp Grant, Ill.—p. 487.
28 Etiologic Factor in Trachoma. O. C. Netto, Brazil.—p. 493.

American Journal of Roentgenology, New York

April, 1918, **5**, No. 4

29 Pyeloscopy. W. F. Manges, Philadelphia.—p. 165.
30 Medicolegal Status of Roentgenologist. A. Soiland, Los Angeles. —p. 173.
31 Opaque Roentgen Ray Meals and Enemas. D. Spangler, Kansas City, Mo.—p. 175.
32 Roentgenologic Examination of Mediastinum. H. J. Walton, Baltimore.—p. 181.
33 Roentgen Differentiation of Cavities, Retractions and Partial Pneumothoraces in Chest. J. M. Steiner, New York.—p. 185.
34 Importance of Position of Upper Arm in Detection of Roentgenologic Shadows in Region of Shoulder Joint. F. W. George, Worcester.—p. 187.
35 Lead Glass and Lead Rubber—U. S. Bureau of Standards. E. B. Rosa, Washington, D. C.—p. 188.
36 Some Unusual Stomach Cases. A. M. Cole, Indianapolis.—p. 189.
37 Periosteal Sarcoma in Dog. W. H. Stewart, New York—p. 192.
38 Method of Obtaining an Accurate Lateral Roentgenogram of Shoulder Joint. W. S. Lawrence, Memphis, Tenn.—p. 193.
39 Roentgenograms of Myxoma of Femur. A. Cotton and S. McCleary, Baltimore.—p. 195.
40 Congenital Case of Syphilis of Stomach. G. Von Poswik, Scranton, Pa.—p. 199.

May, 1918, **5**, No. 5

41 Roentgenoscopy at Front. R. Desplats, France.—p. 222.
42 Localization of Foreign Bodies. J. S. Shearer, Ithaca.—p. 229.
43 Adjuncts to Roentgenotherapy in Treatment of Malignant Disease. G. E. Pfahler, Philadelphia.—p. 249.
44 Differential Diagnosis of Bone Tumors. F. H. Baetjer, Baltimore —p. 260.

Archives of Ophthalmology, New Rochelle, N. Y.

July, **47**, No. 4

45 Value of Blood Count in Diagnosis of Sympathetic Ophthalmia. S. R. Gifford.—p. 327.
46 Case of Bilateral Papilledema Due to Empyema of Sphenoid and Ethmoid Sinuses. Operation and Recovery. G. H. Bell, New York.—p. 344.
47 Intimate Relation Between Ear and Eye as Shown by Bárány Tests. H. M. Langdon and I. H. Jones, Philadelphia.—p. 348.
48 Some Phases of Vestibular Nerve Problem. J. Dunn, Richmond, Va.—p. 354.
49 Light Pupillary Reflex; Case of Unilateral Argyll Robertson Pupil, with Consensual Reaction in Both Eyes. A. Lutz, Havana, —p. 370.
50 Influence of Function on Structure of Eye. E. Uhlenhuth, New York.—p. 401.
51 Operative Treatment of Traumatic Coloboma of Lid. L. v. Blaskovics, Budapest.—p. 404.
52 Opticociliary Neurotomy, Resection of Optic Nerve, Substitute for Enucleation. A. H. Pagenstecher, Wiesbaden.—p. 409.

Boston Medical and Surgical Journal

July 11, 1918, **179**, No. 2

53 Extremes in Infant Feeding, Present Tendencies. F. B. Talbot, Boston.—p. 35.
54 Mentally Defective Criminal. A. T. Baker, East View, N. Y. —p. 38.
55 Treatment of Colds. D. C. Dennett, Winchester.—p. 41.

California State Journal of Medicine, San Francisco

July, 1918, **16**, No. 7

56 Metabolism in Diabetes, Nephritis and Cholecystitis. L. M. Breed, Pasadena.—p. 327.
57 *Autogenous Colon Vaccines in Eczema. J. A. Jackson and R. J. Pickard, San Diego.—p. 330.
58 Granuloma of Larynx. J. M. Brown, Los Angeles.—p. 332.
59 Xanthoma Tuberosum Multiplex. A. Davidson, Los Angeles. —p. 333.
60 Vincent's Angina; Report of Case. J. M. King, Los Angeles, —p. 334.
61 Neurologic Aspect of Brain Tumors. W. F. Schaller, San Francisco.—p. 336.
62 Abscess of Liver in Young Infant. A. J. Scott, Jr., Los Angeles. —p. 337.
63 Cause and Prevention of Postoperative Gas Pains. W. C. Alvarez, San Francisco.—p. 338.

57. **Autogenous Colon Vaccines in Eczema.**—In twelve cases of eczema with indicanuria *B. coli* was isolated from the feces and a vaccine made. This vaccine was injected two or three times a week. Nine patients were cured, two showed no result from vaccines. Twenty other patients with traces of indican, or no indican, showed improvement and cure attributable to the vaccine in three patients, and slight benefit in one. In all the patients a simple diet was prescribed, elimination was watched, and the usual mild, local applications made, except in four cases in which the vaccine was used alone. Jackson and Pickard believe that this is a new group of eczema cases, in which there is a pervertd metabolism of the individual's colon bacilli, possibly a mild inflammation (an eczema) of the bowel itself, with toxemia, and eczema in the susceptible skin. Through the use of the specific vaccine the individual immunity is reestablished, the colon bacilli subside to their ordinary habits of growth, losing their acquired virulence, and the symptoms disappear.

Canadian Medical Association Journal, Toronto

July, 1918, **8**, No. 7

64. *Significance of Heart Murmurs That May be Found on Examination of Candidates for Military Service. L. F. Barker, Baltimore.—p. 577.
65 Duodenejejunostomy; Its Indications and Technic. J. McKenty, Winnipeg.—p. 586.
66 Diagnosis of Inflammations of Uveal Tract of Systemic Origin. W. G. M. Byers, Montreal.—p. 593.
67 Ozena. D. J. G. Wishart, Toronto.—p. 606.
68 Vesical Symptoms in Renal Disease. D. W. MacKenzie.—p. 611.
69 Abdominal Surgery as Factor in Treatment of Pulmonary Tuberculosis. N. H. Beal, London, Ont.—p. 617.
70 Report of Special Clinic for Treatment of Syphilis, Toronto General Hospital. E. J. Trow, Toronto.—p. 622.
71 Treatment of Syphilis, Report of Special Clinic for Syphilis, Toronto General Hospital. W. T. Williams, Toronto.—p. 627.

64. **Heart Murmurs in Candidates for Military Service.**—Barker's experience at a Medical Advisory Board during the past three months, where with others he has examined the hearts of 2,500 drafted men between the ages of 21 and 31, indicates: 1. That many organic murmurs (diastolic murmur of aortic insufficiency, presystolic murmur and snapping first sound of mitral stenosis) are often entirely overlooked by examiners in local boards, for they are not infrequently detected in men referred to the Advisory Board for defects other than those of the cardiovascular system. 2. That many extracardiac (cardiorespiratory) murmurs, and accidental intracardiac murmurs, are suspected by medical examiners to be murmurs of serious import. 3. That the hearts of some of the men presenting organic murmurs are better prepared to stand exertion than are the hearts of some men presenting no murmurs. 4. That good response to the exercise test by no means rules out the existence of organic disease of the valves of the heart. 5. That many men with organic disease of the valves of the heart need not be unconditionally rejected, though according to present regulations they must be, for many of them are entirely capable of undertaking special service not involving severe exertion, and some of them could, without harm, even be given duties requiring considerable bodily exertion. Experience in the armies in Europe would indicate that mild stenotic lesions stand strain better than lesions causing valvular insufficiency. The lesions of "barrage" are less serious than the lesions of "fuite." That, on the whole, while the study of cardiac murmurs is of great importance in estimating the fitness of a candidate for military service, still greater importance attaches to the study of the condition of the cardiac muscle and to the estimation of its ability to bear strain.

Colorado Medicine, Denver

July, 1918, **15**, No. 7

72. Acute Cholecystitis. Z. H. McClanahan, Colorado Springs. —p. 162.
73 Cholecystectomy vs. Cholecystostomy. F. N. Cochems and A. J. Bender, Salida.—p. 164.
74 Function and Fate of Bone Graft. H. G. Wetherill, Denver. —p. 170.
75 Eclampsia. P. A. Murphy, Denver.—p. 175.
76 Congenital Stenosis of Esophagus; Report of Case. C. T. Knuckey, Lamar.—p. 177.

Delaware State Medical Journal, Wilmington

April-June, 1918, **9**, No. 2

77 Unusual Surgical Conditions. J. Palmer, Wilmington.—p. 2.
78 Pneumonia. J. W. Bastian, Wilmington.—p. 8.
79 Tuberculosis Situation. F. H. Edsall, Wilmington.—p. 14.
80 Relation of Tonsils to General Disease, and Sluder Method of Extirpation. E. R. Mayerberg, Wilmington.—p. 18.

Florida Medical Association Journal, Jacksonville

May, 1918, **4**, No. 11

81 Treatment of Syphilis of Central Nervous System. H. M. Smith, Chattahoochee.—p. 319.
82 Colony Care for Epileptic and Feebleminded of Florida. W. M. Bevis, Chattahoochee.—p. 322.
82 Relation of Medical Profession to Each Other and to Public. R. R. Kime, Lakeland.—p. 325.
84 Uvula. U. S. Bird, Tampa.—p. 331.

Illinois Medical Journal, Chicago

July, 1918, **34**, No. 1

85 Oration on Surgery. W. O. Sherman, Pittsburgh.—p. 4.
86 Work of Grievance Committee. F. L. Glenn, Chicago.—p. 10.
87 Roentgen Examination of Kidney Tumors. P. Eisen, Chicago. —p. 14.
88 Osteosarcoma of Femur with Unusual Roentgen Findings. M. Reichmann, Chicago.—p. 16.
89 Strictures of Urethra. C. H. Solomon, Chicago.—p. 18.

Journal of Experimental Medicine, Baltimore

July, 1918, **28**, No. 1

90 *Lymphocyte in Natural and Induced Resistance to Transplanted Cancer. Effect of Roentgen Rays on Artificially Induced Immunity. J. B. Murphy and H. D. Taylor, New York.—p. 1.
91 Passage of Neutralizing Substance from Blood into Cerebrospinal Fluid in Actively Immunized Monkeys. S. Flexner and H. L. Amoss, New York.—p. 11.
92 *Results of Prophylactic Inoculation against Pneumococcus in Twelve Thousand Five Hundred and Nineteen Men. R. L. Cecil and J. H. Austin, New York.—p. 19.
93 *Homohemolytic System for Serum Diagnosis of Syphilis. H. Noguchi, New York.—p. 43.
94 *Experimental Study of Vaccination against Bacilli Dysenteriae. P. K. Olitsky, New York.—p. 69.
95 Coccidiosis in Young Calves. T. Smith and H. W. Graybill, Princeton, N. J.—p. 89.

90. **Resistance to Transplanted Cancer.**—According to Murphy and Taylor, mice artificially immunized against a transplantable carcinoma, inoculated and proved immune, may be again rendered susceptible to the same tumor by exposure to the roentgen rays. The immune animals which have not been treated with the roentgen rays preserve, to a large degree, their resistance to a second inoculation of the tumor in question.

92. **Prophylactic Inoculation Against Pneumococcus.**—From a study of the agglutinins and protective power of the serum of forty-two persons vaccinated against the pneumococcus, Types I, II and III, it is demonstrated by Cecil and Austin that a definite immune response has been secured to Types I and II by the dose of vaccine employed. Little evidence of response to Type III can be demonstrated by these methods, but this is of less significance in that in animals it is relatively difficult to secure antibodies against this strain in the serum, even though a considerable degree of active immunity may have been produced in the vaccinated animal. The degree of response to the vaccination appears to be dependent on the total dosage of each type of pneumococcus admipistered. While some response may be elicited by 2½ billion cocci of each type, a much more constant and greater response follows

13 billion. In subcutaneous administration the manner in which the total dosage is divided, whether given in a single large dose, in seven small daily doses, or in three to five moderate doses at three to seven days intervals, seems to have little influence on the degree of immune response, provided the total dosage is the same. The local and general toxic reaction varies greatly in different persons. The smaller the individual doses, the fewer are the severe reactions. This makes it desirable to divide the total dosage into as many inoculations as circumstances make practicable.

At Camp Upton 12,519 men have been vaccinated against Pneumococcus Types I, II and III. Three or four doses were given at intervals of five to seven days with a total dosage of 6 to 9 billion of Types I and II, and 4½ to 6 billion of Type III. During the ten weeks that elapsed since the vaccination, no cases of pneumonia of these three types occurred among the men who had received two or more injections of vaccine. In a control of approximately 20,000 men there were twenty-six cases of Pneumococcus Types I, II and III pneumonias during the same period. The incidence of Pneumococcus Type IV pneumonia and streptococcus pneumonia was much less among the vaccinated troops than among the unvaccinated. No explanation has been advanced for this difference. Small sterile infiltrations disappearing spontaneously occasionally follow the injection of large doses of pneumococcus vaccine and appear to be an expression of cutaneous hypersusceptibility. The persons who develop these lesions exhibit local reactions to each dose of vaccine. They also give abnormally marked reactions to intradermal injections of pneumotoxin. They do not, however, exhibit anything notable in the agglutinative or protective powers of their serums after vaccination. Whereas the immune response is characteristically specific for the type of pneumococcus, this reaction is not specific for any type. The authors have found no evidence that Type III is more prone to elicit these severe local reactions than are Types I and II. Prophylactic vaccination against pneumococcus of Types I, II and III is practical and apparently gives protection against pneumonia produced by these types. It remains to be determined how long this immunity persists.

93. **Serum Diagnosis of Syphilis.**—Noguchi has examined 1,331 specimens of blood and fifty-two cerebrospinal fluids. Of 1,118 specimens of serums from these sources 517 gave a positive and 601 a negative reaction, the results conforming to those reported by the serologic departments of the various hospitals. Of 132 specimens from psychiatric cases, fifty-four were from general paralysis cases, and all except two gave a strongly positive reaction. Among other psychoses, including seventy-five cases of dementia praecox, three of alcoholic psychosis, three of imbecility, three of senile psychosis, six of arteriosclerosis, one of manic depressive insanity, and one paranoic condition, there were only two positive reactions, these occurring among the dementia praecox cases. The reactions with eighty-one inactivated serums agreed with those obtained by others with the same material. Twenty cerebrospinal fluids from cases of general paralysis gave a strongly positive reaction, while thirty-two specimens from other nonsyphilitic cases showed a negative reaction. The statement will perhaps bear repeating that of 1,250 fresh human serums complement was deficient in ninety-three specimens, which had to be examined either by means of additional amboceptor or by supplying active human complement from fresh negative serums. This special adjustment with fresh serums is one which demands particular attention on the part of serologists adopting the method.

94. **Vaccination Against Bacilli Dysenteriae.**—The purpose of Olitsky's investigation was to determine a practical method of vaccination against bacillary dysentery. His study seems to emphasize the advantages of a bland oily medium for suspending dysentery bacilli for purposes of active immunization or vaccination. The experiments on animals and a small number of tests on man indicate that the single injection of an almond oil suspension of the Shiga and Flexner groups of dysentery bacilli suffices to afford protection as indicated by the appearance in the blood of definite specific antibodies for each group of the bacilli, and by the protection of animals from otherwise lethal doses of the living organisms or their toxic products. Olitsky says that the extent to which vaccination should be applied to man will depend on circumstances and conditions still to be defined, but the method appears to be wholly practicable.

Journal of Infectious Diseases, Chicago

June, 1918. **22**, No. 6

96 *Meningococcus Carriers and Bacteriology of Epidemic Meningitis. G. Mathers and R. D. Herrold, Chicago.—p. 523.
97 *Thermostabile and So-Called Thermolabile Hemolysinis. H. Sherman, Lawrence, Kans.—p. 534.
98 *Attenuation of Hog Cholera Virus and Its Effect on Normal Hogs. C. L. McArthur, Fayetteville, Ark.—p. 541.
99 *Cultures of Leptothrix from Case of Parinaud's Conjunctivitis. W. B. Wherry and V. Ray, Cincinnati.—p. 554.
100 *Action of Glycerol on Micrococci from Epidemic Poliomyeltis. G. Mathers and G. H. Weaver, Chicago.—p. 559.
101 *Production of Precipitins by Fowl. L. Hektoen, Chicago.—p. 561.
102 Streptothrix Interproximalis. N. Sp. An Obligate Micro-Aerophile from Human Mouth. E. A. Fennel, Cincinnati.—p. 567.
103 *Pneumococcidal Power of Rabbit Serum After Administration of Ethylhydrocuprein Hydrochlorid, Quinin and Urea Hydrochlorid, and Other Cinchona Derivatives. C. Weiss, Philadelphia.—p. 573.
104 Studies on B. Abortus and Related Bacteria. Pathogenicity of B. B. Lipolyticus for Guinea-Pigs. A. C. Evans, Washington, D. C.—p. 576.
105 Id.: Comparison of B. Abortus with B. Bronchisepticus and with Organism which Causes Malta Fever. A. C. Evans, Washington, D. C.—p. 580.
106 *Hypersensitiveness and Asthma, Especially in Relation to Emanations from Horses. A. de Besche, Christiania, Norway.—p. 594.

96. **Meningococcus Carriers and Bacteriology of Epidemic Meningitis.**—During the summer and fall of 1917 an extensive bacteriologic study was made by Mathers and Herrold of epidemic meningitis in one of the large military camps. The meningococcus carriers in the infected organizations were identified and isolated. For the cultures plain blood agar was found to be satisfactory and the material for culture was obtained from the nasopharynx by means of a simple uncovered wire swab. It was found that 3 to 6 per cent. of the men examined were meningococcus carriers. The majority of these carriers, however, were of the temporary type; only 1.2 per cent. of the total number of suspects examined proved to be chronic carriers. Chronic meningococcus carriers, as distinguished from the temporary type, often harbor great numbers of meningococci in the secretions of the nose and throat. The number of carriers was found to be high among those coming in contact with meningitis cases. In a study of the biologic reactions of 150 strains of meningococci from different sources two large biologic groups were differentiated by means of macroscopic agglutination tests using monovalent serums. The agglutination reactions were in most instances definite and specific but a number of atypical and inagglutinable strains were met with in each group. The atypical strains, however, did not differ enough from the other members of the group to warrant different classification as determined by agglutination. The classification of the inagglutinable strains was accomplished by means of agglutination with monovalent serums prepared from these strains; these serums yielded specific reactions with organisms of one or the other main type. The biologic type of meningococcus predominant in the camp epidemic was identical with the type prevailing among the chronic carriers, but different from the type of meningococcus causing the majority of the sporadic cases of cerebrospinal fever in Chicago. Also the type of meningococcus found in the cases and in corresponding immediate contacts was in every instance the same. These facts suggest that there is a close relationship between cases of epidemic meningitis and meningococcus carriers.

97. **Thermostabile and Thermolabile Hemolysis.**—As the result of his investigations, Sherman suggests that all of those hemolysins which can be titrated direct be called "obvious" hemolysins, and that the term "masked" be applied to those "obvious" hemolysins which are not detectable by direct titration after inactivation. As there are no thermolabile hemolysins, there can be no "evolution of the antibody" from a thermolabile complement through a thermolabile hemolysin to a thermostabile hemolysin. Sherman found that the immune hemolysin first formed on injection of the antigen is thermostabile.

98. **Attenuation of Hog Cholera Virus and Effect on Normal Hogs.**—The results of McArthur's experiments would indicate that hog cholera virus can be attenuated to a certain extent by heating, but this heated material is not suitable as vaccine, because in many cases it is apt to cause the disease.

99. **Leptothrix from Parinaud's Conjunctivitis.**—Pus aspirated from the preauricular gland of a case of Parinaud's conjunctivitis and injected subcutaneously in a white mouse, produced an infection, after an incubation period of from four to five days, characterized by purulent conjunctivitis and death. From muscular abscesses found postmortem, a leptothrix was isolated which grew only on slants of egg yolk incubated under partial tension and anaerobic condition. Pus from the mouse injected into a second white mouse reproduced the symptoms but resulted in recovery. The leptothrix isolated was nonpathogenic for white rats and a wild mouse. White mice were not inoculated with the pure culture. Later in the course of the human case a similar organism was isolated on egg yolk directly from the preauricular gland. Wherry and Ray are rather of the opinion that the organism grown by them is identical with that found in sections by Verhoeff. The use of a guinea-pig and a rabbit seemed to rule out the presence of the tubercle bacillus.

100. **Action of Glycerol on Micrococci from Epidemic Poliomyelitis.**—Mathers and Weaver found that poliomyelitic cocci as well as pneumococci, hemolytic streptococci and *Streptococcus viridans* when suspended in 50 per cent. glycerol remain viable for fifteen to thirty days. In the presence of a suitable culture medium such as blood agar, however, cultures of these organisms may remain alive for ninety days. In two instances poliomyelitic cocci were obtained in culture from the glycerolated nervous system of cases of poliomyelitis after a period of fifteen months. The authors regard it as probable then that the micrococci associated with poliomyelitis similar to the virus of the disease, are highly resistant to the bactericidal action of glycerol in 50 per cent. solution. Ordinary streptococci and pneumococci are also markedly resistant to this germicide.

101. **Production of Precipitins by Fowl.**—According to Hektoen the domestic fowl is a prompt, reliable and liberal producer of precipitins, more so than the rabbit. A single intraperitoneal injection of 20 c.c. of defibrinated blood or serum in most cases in ten to twelve days yields a precipitating serum of sufficient strength and specificity for practical purposes. On account of an unwelcome tendency to give nonspecific reactions, especially on rapid transfer from low to higher temperatures, great care must be exercised in all tests with fowl antiserum, and 1.8 per cent. salt solution should be used in making all mixtures and dilutions. In case of necessity, Hektoen says, the fowl can be used as a substitute for the rabbit for the production of precipitating serums in general, as has been done by Sutherland in India. Wherever rabbit antiserum is available, however, it perhaps will be best in forensic work to limit the use of fowl antiserum for the present to cases which demand a definite answer to the question whether a given blood spot is rabbit blood. According to Hektoen in two cases it proved easy by means of antirabbit fowl serum to demonstrate that certain blood spots, in one case on a newspaper and in the other on shoes, were due to rabbit blood.

103. **Pneumococcidal Power of Rabbit Serum After Injection of Cinchona Derivatives.**—No pneumococcidal action of rabbit serum could be demonstrated after a single large tolerated dose, after a single fatal dose, after repeated injections of tolerated doses either by oral or by intravenous routes of various cinchona derivatives including ethylhydrocuprein hydrochlorid, quinin and urea hydrochlorid, quinin dihydrobromid, and quinin chlorohydrosulphate. A review of the literature indicates that the liver of the rabbit has a high destructive action on quinin alkaloids and that both leukocytes and red blood cells (but not serum) have a marked affinity for cinchona compounds.

106. **Hypersensitiveness and Asthma.**—De Besche examined eighteen cases of ordinary bronchial asthma without being able to discover any relation to horses or to find any exciting cause.

Medical Record, New York

July 13, 1918, 94, No. 2

107 Soldier and Tuberculosis. E. O. Otis, Boston.—p. 47.
108 Analysis of Weak Foot with Reference to Precision in Use of Descriptive Terms in Teaching. R. Whitman, New York. —p. 49.
109 Feeding in Marasmus. M. S. Reuben, New York.—p. 51.
110 Results and Interpretation of Wassermann Test. C. A. Johnson, Los Angeles.—p. 59.
111 Stammering. E. Tompkins, Pasadena, Calif.—p. 62.
112 Transfusion of Blood by Citrate Method. A. Zingher. New York. —p. 64.
113 *Death from Volvulus Caused by Roundworms. V. G. Heiser, New York.—p. 65.

113. **Death from Volvulus Caused by Roundworms.**—A child 4 years of age was given 6 minims of oil of chenopodium. Two days after the administration of the chenopodium the child was reported very ill. There was marked distention of the abdomen, with severe pains, frequent vomiting, and the bowels had not moved since the day treatment was given. On postmortem a mass of roundworms the size of a man's fist was found blocking the bowel; the intestines below the mass were so twisted as to cause complete obstruction; there was local peritonitis in the vicinity of the obstruction, and more than 300 roundworms were found in the intestinal canal.

Military Surgeon, Washington, D. C.

July, 1918, 43, No. 1

114 Prevention and Treatment of Delayed and Faulty Union of Fractures. W. A. Clark.—p. 1.
115 *Examination of Men of First Draft Referred to Cardiovascular Board, 89th Division, Camp Funston, Kan. J. L. Benjamin. —p. 12.
116 *Communicable Disease at Camp Funston and Medical Officers' Training Camp, Fort Riley, Kan., Oct. 15, 1917, to Jan. 15, 1918. H. E. Eggers and E. H. Kerr.—p. 17.
117 *Report of Physical Examination of Twenty Thousand Volunteers. C. L. Cole, E. W. Loomis and E. A. Campbell.—p. 45.

115. **Examination of Heart of Drafted Men.**—The new system of examining recruits as conducted at Camp Funston, at the present time Benjamin describes as follows: In the first place, the men are immediately assigned en masse to one depot brigade. Immediately on arrival they are all examined in this organization, where also meet the special boards. The men are stripped of their civilian clothes, given their initial bath, and proceed immediately to undergo their first general examination, where they are also vaccinated, inoculated against typhoid, their finger-prints taken, and all examined for tuberculosis. This latter board immediately refers the cardiac cases to the special examiners.

In the cardiac room the system is as follows: One examiner and one corps man are in attendance. A record is kept of each man. Six men can conveniently be examined at one time. Various numbers are written on the chest by the examiner to be copied by the corps man, thus eliminating the necessity of calling off data. The interpretation of the numbers is as follows: A number at the top of the sternum represents the dorsal pulse rate. A number under the left shoulder is the serial number of the recruit, one to the right of the sternum is the measurement of the right border of the heart from midsternum and one to the left is the number of centimeters the left cardiac border extends from the midsternum. Two numbers are written beneath the nipple to indicate the space where the apical pulsation is felt with greatest force and its location inside or outside the nipple line. After completion of this data the patient is directed to lie down, when the dorsal pulse rate and blood pressure are taken. After this he is directed to hop 100 times on one foot (the type of hop being first demonstrated), after which the pulse rate is taken by listening with the stethoscope. The largest number of recruits examined in this way in one day was forty-five.

Concerning the lesions found during the examinations, of special interest is the numerical relation of mitral stenosis to mitral insufficiency. During the earlier months of the examination very few cases of mitral stenosis were reported. It was only after the tuberculosis board began its work that these cases started to roll in. They were referred, first, because of symptoms of cough, dyspnea or hemoptysis, for which they were sent for examination of their lungs because of suspected phthisis, or they were picked up in the course

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of the chest examination, hitherto unsuspected. The members of the tuberculosis board had been previously instructed as to just what cardiac signs to look for in the course of their work. The criteria of diagnosis as explained to them were: (1) presystolic thrill, (2) snapping first sound at the apex, (3) presystolic roll at the mitral area, (4) loud pulmonic second sound.

Doubtful cases were sent back to their organizations with a note requesting that the soldier be watched for the ensuing four weeks and at the expiration of which time to be returned with a note stating how he endured Regular Army duties. With the exception of a very few, such persons proved to be very undesirable soldiers. The cause, so far as was possible to determine, seemed to have been previous attacks of rheumatism. Insufficiency of the aortic valves was relatively frequent. With the exception of five cases, rheumatism seemed to have been the etiologic factor. Wassermann tests were made of all the persons in this group, and in only five were positive results obtained. Curiously enough, persons who had this lesion stood Army duties peculiarly well, as in only a very few instances were the lesions found except in the routine examination, symptoms having been wholly lacking. As regards aortic stenosis, only two positive cases were found by Benjamin.

Fifteen cases of undisputed hyperthyroidism were diagnosed. The irregularities were rather conspicuous by their almost entire absence. By the aid of roentgen ray the diagnosis of two cases of aneurysm was confirmed. In one instance the sacculation occurred in the middle of the arch, in the other in the beginning of the descending branch of the aorta. It is Benjaminin's opinion that the close association of cardiovascular and tuberculosis examiners is a most desirable one. There is no doubting the fact that undesirable soldiers are thus eliminated early in their training. Of special interest is the observation that practically no case of "disordered action on the heart," so vividly described by members of the research committee of the Hampstead Hospital, England, has been found.

116. **Communicable Disease at Camps.**—On the basis of study and experience, the following recommendations are offered by Eggers and Kerr: (1) That the work of the department be given to as large a percentage as possible to men in line for regimental assignments. (2) That the present scheme of cooperation with the Department of Sanitation be continued. (3) That certain men be trained in all features of the work, so as to be available as epidemiologists. (4) That the attention of the Surgeon-General be attracted to this work, and the following suggestions made: (*a*) That one or more assistant epidemiologists be assigned to each camp to instruct the regimental men in inspection for communicable diseases. (*b*) That specially trained men to take charge of isolation and detention camps are advisable. (*c*) That flying squadrons to take over meningitis cultures be formed, or, at any rate, be listed and held where they will be available, these squadrons to be made up of a field chief and assistants to handle the cultures and a laboratory chief and assistants to handle the laboratory work. (*d*) With the organization and the size and character of the camp, men can be trained for this work, and the authors feel that this is advisable.

117. **Physical Examination of Volunteers.**—According to Cole and his associates practically 50 per cent. of all candidates volunteering for military service—20,000 men examined—have physical defects which incapacitate for military service entirely or reduce efficiency. The present method of examination requires acceptance of many defective men or rejection of many men who can be made capable of performing military service. Establishment of refitting stations with properly organized staff for medical treatment and military drill would afford time for observation of men before discharge or afford an opportunity for treatment of curable defects. The number of men available for military service would be increased. The military efficiency of the forces would be increased through bringing all men to a higher physical standard. More efficient intensive training could be given at training camps through reducing the number of men admitted to camp hospitals for physical defects existing at the time of enlistment. Many physical defects exist in young men of military age which could have been corrected, by proper inspection and physical development, while the persons were schoolchildren, if provision had been made for such procedure in the public schools.

New Jersey Medical Society Journal, Orange

July, 1918, **15**, No. 7

118 War Strain and Shell Shock. M. A. Starr, New York.—p. 221.
119 Differential Diagnosis of Various Forms of Laryngeal Obstruction. F. M. Hoffman, New Brunswick.—p. 227.
120 Eating. D. E. English, Summit.—p. 231.
121 Immortality of Man. G. B. Philhower, Nutley.—p. 234.

New York Medical Journal

July 13, 1918, **108**, No. 2

122 Some Relations of Diet to Disease. L. B. Mendel, New Haven, Conn.—p. 49.
123 Pituitary Extract and Epinephrin Injections in Hay Fever; Report of Cases. E. Zueblin, Cincinnati.—p. 51.
124 Analytic View of Psychic Factor in Shock. G. M. Parker, New York.—p. 58.
125 Adrenopathic Hyperchlorhydrias. D. M. Kaplan and J. G. W. Greeff, New York.—p. 61.
126 Twilight Sleep. H. Aranow, New York.—p. 64.
127 Survey of Ear Conditions in Schoolchildren. E. W. Kobler, New York.—p. 66.
128 Scarlet Fever and Epilepsy. H. Friedel, Stapleton, S. I.—p. 68.
129 Eye, Ear, Nose and Throat Work at Recruitinig Depot. J. J. Smith, Fort McDowell, Calif.—p. 69.

Oklahoma State Medical Association Journal, Muskogee

July, 1918, **11**, No. 7

130 Radium and Its Application in Medicine and Surgery. E. S. Lain, Oklahoma City.—p. 219.
131 Carcinoma of Mastoid; Report of Case. C. M. Fullenwider, Muskogee.—p. 224.
132 Suggestions on Cause of Cancer. A. W. White, Oklahoma City.—p. 226.
133 Cancer of Uterus. R. Grosshart, Tulsa.—p. 228.
134 Relative Etiology and Pathology of Cancer. W. F. Dutton, Tulsa.—p. 229.
135 Early Diagnosis of Cancer of Stomach. C. J. Fishman, Oklahoma City.—p. 235.

Rhode Island Medical Journal, Providence

July, 1918, **2**, No. 7

136 Roentgen Method of Gastro-Intestinal Investigation. W. L. Chapman, Providence.—p. 102.

Social Hygiene, Baltimore

April, 1918, **4**, No. 2

137 Venereal Disease Knows No Boundaries. V. C. Vaughan.—p. 139.
138 Story of Committee of Fifteen of Chicago. C. W. Barnes, Chicago.—p. 145.
139 Social Status of Sailor. J. S. Taylor.—p. 157.
140 Criticism of Venereal Prophylaxis. E. H. Hooker.—p. 179.
141 Passing of Red Light District—Vice Investigations and Results. J. Mayer.—p. 197.
142 Democracy at Work—San Antonio Reborn. H. B. Ayres.—p. 211.
143 Possible Effects of War on Future of Social Hygiene Movement. T. D. Eliot.—p. 219.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 22, 1918, **1**, No. 2999

1 Significance of Cardiac Murmurs. C. Wilson.—p. 687.
2 *Transfusion with Preserved Red Blood Cells. O. H. Robertson.—p. 691.
3 *Blood Transfusion in Field Ambulance. N. M. Guiou.—p. 695.
4 Amebic Abscess of Liver. R. J. McN. Love.—p. 696.
5. Acute Intestinal Obstruction by Tapeworms (T. Saginata). J. B. Christopherson and M. Izzedin.—p. 697.

2. **Transfusion with Preserved Red Blood Cells.**—The blood used for transfusion by Robertson had been kept varying periods of time up to twenty-six days. The majority of the transfusions were given with blood preserved from ten days to two weeks. The patients transfused included cases of hemorrhage, shock and sepsis, chiefly the two former. An attempt was made to choose only those patients who would probably die without transfusion and yet who had a chance of recovery if given blood, that is, the only moderately serious and the apparently hopeless cases were excluded. The

amounts given in a single transfusion varied from 500 c.c. to 1,000 c.c., depending on the type of case. If the condition was one of marked anemia the blood sediments of two large bottles were combined. Where the anemia was less severe a large bottle and a small one—750 c.c.—were given. In cases judged to be chiefly shock, 500 c.c. amounts were used. The total fluid bulk of the transfusion was always made up to 1,000 c.c. with gelatin solution. The effect of transfusion with preserved blood was fully as striking as that observed after the giving of freshly drawn blood. There was the same marked improvement in color, the pulse became slower and stronger, and the blood pressure showed an increase of 20 to 40 points. Furthermore, this improvement was maintained and increased. Patients transfused before operation stood the operative procedure well, and subsequent progress was quite as good as in those cases transfused by the usual methods.

In all, twenty-two transfusions were given to twenty persons. Of these, eleven were discharged to the base in good condition and nine died, a mortality of 45 per cent. Those patients who died later all showed the immediate stimulating effect of transfusion with one exception, a patient with profound anemia who died just after transfusion. Four died within forty-eight hours of gas gangrene, and four lived from two to six days, dying ultimately from the same cause. Three of the four patients in this last mentioned group showed very marked improvement subsequent to transfusion; they stood operation well and were making satisfactory progress several days afterward when gas infection appeared. The length of time the blood had been kept appeared to have no influence on its beneficial effect. The improvement in those cases transfused with blood kept three weeks or more seemed to be just as marked as in those who received blood preserved for much shorter periods. Robertson thinks it is probable that four weeks represents about the limit to which blood can be kept for transfusion, as the red cells usually begin to disintegrate soon after this. The chief advantage of this method (Rous and Turner) over other methods of transfusion in current use is the great convenience of having a stock of blood on hand for busy times. The transfusions can be given relatively quickly, and the technic, which is simple and easily acquired, can be carried out entirely by one medical officer.

3. **Blood Transfusion in Field Ambulance.**—In Guiou's opinion, blood transfusion by the syringe method can be done easily in an A. D. S. and in an average regimental aid post; and by its use some patients with severe primary hemorrhage which would in the natural course of events die in the forward area will live to reach the casualty clearing station.

Bulletin of Canadian Army Medical Corps, Ottawa

June, 1918, **1**, No. 3

6 *Combined Inquiry into Presence of Diphtheria and Diphtheroid Bacilli in Open Wounds. J. G. Adami and others.—P. 34.
7 Chronic Hypertrophic Pulmonary Osteo-Arthropathy Following Bronchiectasis. T. B. Futcher.—p. 38.
8 *After-Effects of Wounds in Chest and Their Treatment. J. Meakins and T. W. Walker.—p. 40.
9 *Examination of Sputum for Albumin in Pulmonary Tuberculosis and Chronic Bronchitis. B. S. Cornell.—p. 45.
10 Delayed Tetanus. H. Morell.—p. 46.

6. **Presence of Diphtheria and Diphtheroid Bacilli in Wounds.**—Adami and his associates point out that morphologically and, in the early stages, culturally, diphtheroid bacilli from wounds are, many of them, indistinguishable from *B. diphtheriae*. Harmless, nontoxic bacilli may be present in wounds affording cultures possessing the same sugar formula as regards dextrose, lactose, saccharose and dextrine, as does the true virulent Klebs-Loeffler bacillus. It is not justifiable, therefore, to make a diagnosis of diphtherial infection of wounds, either from smears alone or from stained preparations and cultural characteristics. The demonstration that the bacilli produce toxins, ectotoxins, that is, the result of inoculation of broth cultures, is alone capable of proving the presence of infection by the true virulent *B. diphtheriae*. By the staining, cultural and fermentation tests, four cases of apparent diphtherial infection have been detected in a bacteriologic study of 306 cases of open wounds. By the decisive test of inoculation these are reduced to two. There is a large body of evidence showing that even isolated cases of diphtherial infection of wounds are distinctly uncommon among the wounded overseas, and complete absence of any evidence in Great Britain that these isolated cases have acted as foci for the spread of the infection to other wounded men. No evidence of a widespread infection of open wounds by diphtheria bacilli has been discovered in Canadian hospitals overseas in Great Britain. Diphtheroid bacilli of various orders, while not common, are, as might be expected, more frequent in open wounds. There is no evidence that these have exerted deleterious effects. There is a certain amount of evidence that particular species of diphtheroid bacilli characterize particular hospitals.

8. **After-Effects of Wounds of Chest and Treatment.**—According to Meakins and Walker deformity of the chest wall is a very important disabling after-effect of gunshot wounds of the chest. This deformity follows most frequently prolonged involvement of the pleural cavity. The early and persistant evacuation of fluid from the pleural cavity, either by aspiration or by operation, is of great importance in preventing the development of the deformity. Especially is this so in cases of hemothorax. The early use of special exercises is beneficial in preventing or overcoming this deformity. The prognosis in this condition is exceptionally good under suitable treatment.

9. **Examination of Sputum for Albumin in Tuberculosis and Bronchitis.**—Altogether 580 tests were done by Cornell. All tests were done on twenty-four hour specimens. To 5 c.c. of sputum, add 20 c.c. of normal saline and 5 or 6 drops of acetic acid. Shake thoroughly and filter. Test the filtrate by boiling or with nitric acid for albumin. In fifty-seven cases of chronic bronchitis the albumin test was invariably negative. In seventy-three cases of suspected tuberculosis without definite signs about 87 per cent. gave a positive reaction, and probably 60 per cent. of these showed organisms within two or three months. In seventy-one cases of clinical tuberculosis 79 per cent. showed albumin if the sputum was taken during an elevation of temperature, but albumin was nearly always absent from sputum collected when the temperature and pulse were normal or subnormal. In about 98 per cent. of forty-two cases of proved tuberculosis, the albumin test was positive at some period in the couse of the disease. The author points out that in examining sputum for albumin, whether the case be one of suspected, clinical, or proved tuberculosis, a negative result gives no information unless the sputum be taken over a period of time on successive days and during a rise of temperature. In other words, choose a febrile period for taking the sputum, as albumin will be present then if ever.

Lancet, London

June 22, 1918, **1**, No. 4947

11 Modern Views on Diabetes. E. P. Poulton.—p. 863.
12 *Treatment of Severe Relapsing Cases of Malaria. E. B. Gunson, F. W. Winning, G. A. Johnstone, J. H. Porter and G. B. Scott.—p. 866.
13 Clinical Aspects of Tuberculous Mesenteric Glands. H. W. Carson. p. 869.
14 Sanatorium Treatment of Pulmonary Tuberculosis. N. D. Bardswell.—p. 872.

12. **Treatment of Relapsing Cases of Malaria.**—A considerable number of patients suffering from severe malaria—amounting in one series of 328 cases to 30 per cent. of the total number under treatment at one period—when treated by oral quinin continue to relapse, develop long periods of sustained pyrexia, or become increasingly cachectic. A group of ninety successive patients of this type were treated by Gunson and his associates by two intensive courses of quinin (intramuscular, 20 grains, 20 grain oral, intramuscular, 20 grains daily for four days, the course being repeated ten days later). The result of such treatment was an immediate, progressive and marked improvement in the general condition in all cases. Relapses occurred in 44 per cent. of cases within four weeks, but were of considerably less severity than previously and were completely controlled by oral quinin. Another series of 552 relapsing cases, less severe in type, were treated during the apyrexic period, by three different methods: *A.* 368 were given no quinin; of these, 46 per cent. relapsed within three

weeks; *B.* 94 were given 20 grains of quinin on Saturdays and Sundays; of these, 10 per cent. relapsed within three weeks; *C.* 90 were given 20 grains of quinin daily; of these, 8 per cent. relapsed within three weeks.

The authors conclude therefore that routine treatment of oral quinin is adequate in the majority of cases of relapsing malaria; it is necessary to continue the quinin treatment in doses of 20 grains either daily or twice weekly during the patient's stay in the hospital to obviate a high incidence of relapses. In the cases (the minority) where oral quinin proves inadequate intensive treatment by one or more courses of combined oral and intramuscular quinin (60 grains daily for four days) is followed by such marked improvement as to justify the adoption of this treatment as a routine procedure for such cases, the chief indication for this course being progressive cachexia and visceral enlargement in a patient suffering from repeated relapses or prolonged pyrexia and not responding to oral quinin.

Medical Journal of Australia, Sydney

June 8, 1918, **1**, No. 23

15 Gunshot Wounds of Knee Joint. B. Quick.—p. 469. To be continued.
16 Portable Apparatus for Administration of Warmed Anesthetic Vapor. C. Dyring.—p. 474.
17 Research and General Practitioner. W. T. J. Newton.—p. 476.

Bulletin de l'Académie de Médecine, Paris

June 11, 1918, **79**, No. 23

18 *Treatment of Gastro-Intestinal Atony. G. Hayem.—p. 440.
19 Projectiles in Contact with Vessels. R. Le Fort.—p. 443.

18. **Artificial Mineral Water in Treatment of Gastro-Intestinal Atony.**—Hayem here reports what he calls Nos. 6 and 7 in his series of salt solutions adapted for various pathologic conditions in the digestive tract. Each has been tested in hundreds of cases and has proved its efficacy in the field specified. The formulas are based on certain natural mineral waters, and are adapted for cases of dilatation of the stomach, myasthenia, with or without marked atrophy of muscles. There is usually more or less atrophy of glands in such cases, as well as atony of the bowels. The formula for No. 6 calls for 1 liter distilled water with 2.5 gm. each of sodium chlorid and of magnesium chlorid, with 2 gm. of sodium bicarbonate. If the constipation fails to yield to this, he changes to No. 7 which is the same except that the sodium bicarbonate is replaced by 3 or 5 gm. of sodium sulphate. The magnesium chlorid seems to act on the smooth muscle fibers of the digestive tract, stimulating them to contract and regulating them. He does not mention the doses to be taken.

Paris Médical

May 4, 1918, **8**, No. 18

20 Ouabain and Digitalis in Heart Disease. H. Vaquez and R. Lutembacher.—p. 338.
21 *Serotherapy of Meningitis. A. Netter.—p. 343.
22 Present Status of Transfusion of Blood. J. Rieux.—p. 349.
23 *Serotherapy of Pneumonia. P. Menetrier and Wolff.—p. 355.
24 The Chloramins in Surgery and Hygiene. M. Guillot and M. Daufresne.—p. 359.
25 Does Lactic Bacteriotherapy Acidify the Intestines? P. Carnot and H. Bondouy.—p. 365.

21. **Importance of Polyvalent Serotherapy.**—Netter reports clinical experiences which confirm the superior efficacy of polyvalent serums. He specifies in particular that polyvalent serum from the Rockefeller Institute gave better results than the serum made at Paris or obtained from the official establishments at Berlin, Berne, Darmstadt and elsewhere. Some patients who had been showing no improvement under antiserum from the Paris Pasteur Institute began to improve at once to complete recovery under the serum from the Rockefeller Institute. He expatiates further on the advantages of determining the strain of meningococci involved. The results of serotherapy have grown constantly better in his experience with 347 cases in the last ten years since he has made a practice of doing this. The mortality in 110 infants has dropped from 20.5 to 13.2 per cent.; in 199 older children, from 21.4 to 4.1 per cent., and in the global mortality from 16.3 to 8.49 per cent. While waiting for certainty, a polyvalent serum should be used, or an antiserum for each of the two principal types of meningococci can be injected simultaneously.

23. **Serotherapy in Pneumonia.**—The action of the anti-pneumococcus serum given in twenty-four cases was more intensely toxic than with any other form of serotherapy in the writers' experience. About twelve days after the first injection of serum, ten of the eighteen surviving patients developed general malaise, pains in joints and muscles and some had eruptions. There was also fever, and in some, diarrhea, abdominal pains, vomiting and albuminuria. In one woman of 29 the fever kept at 104.3 for eight days, with other symptoms. In four of the twenty-four a marked and decided change for the better followed the injection of the serum. This group included a pregnant woman and an aged man; both are conditions in which the disease is liable to prove grave. In the others the disease continued its regular course to recovery in all but six; these were exceptionally severe cases or the system was debilitated from other cause. The anti-pneumococcus serum came from the Paris Pasteur Institute.

Presse Médicale, Paris

May 30, 1918, **26**, No. 30

26 *War Wounds of Chest. J. L. Roux-Berger.—p. 269.
27 *Reflex Stomach Symptoms. G. Faroy.—p. 271.
28 Factitious Skin Diseases. J. Minet.—p. 274.
29 Bedside Roentgenoscopy of the Wounded. H. Béclère.—p. 275.
30 Device to Correct Talipes Equinus. Privat and Belot.—p. 276.
31 *Intertrigo Mycosis. R. Sabouraud.—p. 276.

June 13, 1918, **26**, No. 33

32 *Classification of Colon and Proteus Groups. H. Roger.—p. 301.
33 *Projectiles in Pleura or Diaphragm. E. P. de la Villeon.—p. 302.
34 *Soldiers' Enlarged Parotids. C. Mattéi.—p. 303.
35 *Subcutaneous Homohemotherapy. J. A. Sicard.—p. 304.

June 20, 1918, **26**, No. 34

36 *Dyspepsias. F. Ramond.—p. 309.
37 Bullet Fractures of Long Bones. J. Delmas.—p. 310.
38 Factitious Jaundice. Héloüin.—p. 312.
39 Intravenous Injection of Water-Insoluble Products. P. Chevallier.—p. 312.

26. **Dangers of Incomplete Operations After War Wounds of Chest.**—Roux-Berger has had a number of cases in his service in which complications had developed after a war wound of the chest in which the wound at the first operation had not been thoroughly cleared out. Infected fractures of ribs, shell scraps, etc., had been left in the tissues, or a pleuro-bronchial fistula. Attempts to correct these later necessitated dangerous and tedious operations in addition to the long train of disturbances and sequels from these complications. He emphasizes that all would have been avoided if the wound had been treated thoroughly at the start, clearing out all foreign bodies and warding off infection and hemothorax by taking an inventory, as it were, of all the lesions caused by the projectile and repairing them in turn.

27. **Stomach Trouble of Intestinal Origin.**—Faroy refers to disturbances of the sensorimotor gastric dyspepsia type for which some colon trouble is responsible. The colitis may be latent and unsuspected; the patient refers all his disturbances to the stomach. The drowsiness after meals contrasts with the occasional sleeplessness at night. Sometimes the insomnia is accompanied by agitation, dyspnea, tachycardia and other nervous symptoms. During the daytime there may be headache, lassitude, fleeting rheumatic pains, jumping from joint to joint. The objective findings in the stomach are practically normal, but the solar plexus is tender and spasm of the colon can be palpated. This directs attention to the bowels, and by questioning we get at the diagnosis of an abortive, incomplete form of mucous colitis, the source of the reflex nervous-gastric set of symptoms by mediation of the sympathetic system—an entero-solar-gastric neurosis. Ptosis, atony of the stomach and bolting the food are supposed to be capable of creating a similar set of symptoms, but, more probably, the underlying bowel trouble has simply been overlooked. The causal importance of the intestinal factor is demonstrated once for all by the benefit from a course of laxatives to improve bowel functioning and combat the tendency to spasm. The stomach can be disregarded in treatment. Examination of the stools may suggest the necessity for measures addressed

to the kidney or pancreas, and the neuropathic tendency should also be combated.

31. **Intertrigo Mycosis.**—Sabouraud describes a form of intertrigo which develops between the toes and seems to be eczema, but is rebellious to all treatment based on this assumption. A special fungus is involved, and the treatment must begin with removal of all the dead and horny tissue, scraping with a curet and pumice stone. If the tissues are made to bleed, this does no harm. The epidermophyton causing the lesion is very vulnerable, but it is embedded in a horny epidermis which protects it unless this is thoroughly removed. This once accomplished, tincture of iodin, diluted 1 to 5, is rubbed very hard into the skin and left to dry. Then a zinc oxid cream is applied. The whole procedure, scraping, iodin, zinc cream, is repeated daily for eight days. Then the zinc cream is changed for a salve of 0.30 gm. chrysophanic acid in 30 gm. lard. Recurrence is the rule because the horny tissues are so seldom completely removed.

32. **Classification of Colon and Proteus Groups of Bacteria.**—Roger declares that the classification should be by the action of these bacteria on gelatin, on milk and on sugars. His table shows how this brings order out of confusion. He advocates further the restriction of the term "bacillus" to mobile and of "bacterium" to immobile microbes.

33. **Projectiles in Pleura and Diaphragm.**—De la Villéon has extracted projectiles from the pleura in forty-eight cases and from the diaphragm in sixteen. This experience has convinced him that the best method to extract a projectile from the pleura is by a buttonhole incision, under screen control, except when the foreign body is in the mediastinal pleura. This requires an ample thoracotomy to avoid injury of important organs. The buttonhole incision should always be at some distance from the site of the projectile which is thus reached slanting, to avoid ribs. The long slanting passage of the forceps he has devised for the purpose does not seem to do any harm. With a projectile in the right diaphragm, the forceps are introduced from above, through a buttonhole, the diaphragm resting on the liver as on a table. In the left diaphragm conditions are entirely different, and there would be danger of injuring viscera by entering from above. For the left side, he makes the extraction from below, with a laparotomy incision parallel to the costal arch. With this, the roentgen screen is seldom needed. A high supra-umbilical laparotomy is the preferable mode of access to a projectile in the mediastinal diaphragm. His operations for extraction of projectiles in pleura or diaphragm were done usually after the wound had healed, that is, at least three weeks after the injury.

34. **Soldiers' Large Parotids.**—Mattéi has investigated fifty cases of what he calls hypertrophic cirrhosis of the parotid glands but was unable to find any history of mumps in the antecedents, or of orchitis. On the other hand in 170 men (French and Americans), who had recently recovered from mumps, he never discovered any tendency afterward to hardness or protrusion of the parotid glands. The chronic large parotids were especially common in Arab and Indochinese troops, but in them the parotids returned to approximately normal size in the spring. They were mostly men over 30.

35. **Subcutaneous Injection of Blood.**—Sicard reports very favorable experiences with this method, which he calls subcutaneous homohemotherapy. A needle is introduced into the cellular tissue of the abdominal wall of the receptor. Then the venous blood is drawn from the donor into a paraffined capsule and is taken up at once from the capsule into a syringe. The syringe is then adapted to the needle in the receptor's abdominal wall, and the blood is injected at once into the subcutaneous cellular tissue. The whole procedure is simple and harmless and permits injection of from 80 to 120 c.c. of whole blood at one sitting. The blood was always smoothly absorbed in his cases even in the much debilitated. In the last four years he has cured by this means four patients with purpura and internal hemorrhages which had not been influenced by injections of horse serum. They recovered after injection of 100 c.c. of whole blood in this way on four successive days. He also found the method successful in two hemophiliacs who had exhibited anaphylactic reactions when injected with horse serum. The subcutaneous injection of whole blood was borne without mishap and permitted the extraction of teeth in one case and appendicectomy in the other case. The benefit is promptly apparent when it is a hemorrhagic case, but takes longer to show in the cases of anemia.

36. **The Principal Dyspepsia Syndromes.**—Ramond describes the four main types of dyspepsia ordinarily encountered. With the first, the vasomotor type, the meal, especially at night, may be immediately followed by congestion of the face, cold hands and feet, sometimes headache, dizziness, with or without tinnitus, dilated pupils, lassitude, tachycardia, tachypnea, etc., all testifying to vasomotor disturbances of the sympathetic system. The trouble here is not dyspepsia; treatment should be addressed to soothing the nervous system, suppressing stimulants and ordering sedatives, of which belladonna is the most active, with hydrotherapy and hygiene. The second, the cyclic type, includes a vasomotor phase but it does not come on at once after the meal; there is usually an interval of fifteen minutes or more. After the vasomotor phase, lasting for a few minutes or half hour, and an interval of one or several hours, comes a phase of pain. It may be like the pain from a burn or a colic, and the pain may radiate. This tardy pain is probably of inflammatory origin. After the chyme has passed out of the stomach the congested and more or less inflamed mucosa is exposed unprotected to the gastric secretions, and pain results. This explanation is even more plausible in the cases of the third type he describes, the inverse type, in which the pain comes on at once after the meal or after the first few mouthfuls, with possibly nausea and vomiting for a few minutes or half an hour and then these sensations subside, disappearing in the course of fifteen minutes, leaving vasomotor symptoms. The epigastric and xiphoid points are tender and also two points on the left side, at the junction of the cartilages of the eighth and tenth ribs and at a point on the outer margin of the rectus two finger-breadths above the transverse umbilicus line. The congestion or gastritis in this type is in the upper portion of the stomach, while in the preceding type it is in the lower portion. The disturbances in this inverse type seem to be mainly of toxic origin, from abuse of alcohol, from gas poisoning, from auto-intoxication. The fourth type is a combination of these two types, the pain is both early and tardy.

In examining a patient it is important to ask the questions in a certain order, inquiring as to symptoms from waking to bedtime and at night, the nature of the breakfast and whether it is taken with appetite, the sensations between breakfast and lunch, between the midday and the evening meal, the sensations experienced one hour, two hours, three hours after the meal, and the sensations from the stomach during the night. By interrogating the patient in this way, the physician refrains from suggesting symptoms, and at the same time he gets a surprisingly complete oversight of conditions, with consequent indications for the special treatment of each type.

Progrès Médical, Paris

May 25, 1918, **33**, No. 21

40 *Psycho-Nervous Pains. Bernheim.—p. 181.
41 *War Neurasthenias. H. Damaye.—p. 182.
42 Phlebitis from Muscular Effort. J. Murard.—p. 186.

40. **Pains Created or Maintained by Autosuggestion.**—Bernheim gives some typical examples of purely imaginary pains, or imaginary pains grafted on a primary organic pain from some transient lesion. Two of the patients were children of 9; one screamed whenever the umbilicus was touched. A small healed excoriation explained the trouble. In the other child there was pain in the back and hand, sequels of acute articular rheumatism. In the adults the pain developed after a physical effort or joint lesion. In each case waking suggestion cured the pain immediately, or it subsided more gradually, but all yielded in time. In another group of cases the autosuggestion pain, as sequel of some fall or gunshot wound or without appreciable organic lesion, had lasted up to twenty years, and had become rebellious to all measures. He explains that the sensory innervation, like other functions, is rarely in a state of absolute repose; in some region

or other there is an itching, a fleeting painful sensation, a feeling of heat or of heaviness, muscular or vasomotor spasms, etc. These sensations are not noticed as a rule during the day, but, when wakeful at night, they force themselves on the consciousness and are remembered and in the more impressionable may gradually become fixed obsessions. In one case the tenderness and pain were in a small patch in the vertex. Bernheim reiterates that every "psycho-nervous pain," single or multiple, primary or secondary, is amenable to psychotherapy unless of such long standing that it has become a sensory tic as it were. It is important to recognize the nature of these disturbances; when the physician tries one remedy after another on the assumption of an organic basis and the patient feels no relief, the latter is confirmed more and more in the belief that his pain is strongly rooted. The physician thus applies suggestion in the wrong direction.

41. **War Neurasthenia.**—Damaye has had a total of 123 men with neurasthenia in his psychiatric service in the Amiens region. In seventy-six cases the neurasthenia was pure. These neurasthenia cases formed nearly one eighth of the 916 patients in the course of two years. The neurasthenia occurs in four different forms according as it affects the predisposed or develops after a concussion or bombardment or after a skull wound. The symptoms became attenuated in the majority of cases under treatment with quiet and repose, daily half-hour baths at body temperature, courses of sodium cacodylate, with prolonged hot foot baths or mustard baths in case of headache, wet packs on the cicatrix in the skull and iodized potions, in addition to a calomel purge and milk diet at first.

Correspondens-Blatt für Schweizer Aerzte, Basel

March 23, 1918, **48**, No. 12

43 *Iodin in Prophylaxis of Endemic Goiter. C. Roux.—p. 369.
44 *Eczema Problems. F. Lewandowsky.—p. 371.
45 Artificial Leg. (Eine neue Beinprothese.) W. Odermatt.—p. 380.

March 30, 1918, **48**, No. 13

46 Treatment of Fractured Fingers. A. Ziegler.—p. 401.
47 *Asthma in Children and Mountain Climate. A. von Planta.—p. 408.
48 *Ligation of Internal Jugular Vein. Stolz.—p. 415.
49 Modern Dietaries and Dental Caries. H. Koller.—p. 421.

43. **Prophylaxis of Goiter.**—Roux emphasizes that the one absolutely certain fact acquired to date in the epidemiology of endemic goiter is that iodin, applied at the right time, is the best treatment and that it is usually effectual, and without danger if given cautiously. After the goiter has once developed enough to attract attention, it is too late for iodin to be effectual in the same way. Roux suggests that it would be a simple matter to have an open jar with a few crystals of iodin placed in each schoolroom, the crystals renewed as they evaporate. The amount of iodin thus inhaled would be infinitesimal and could not do any harm, while during the school year it might act as effectually as the iodin inhaled during a month at the seashore, which generally suffices. At the hospital and policlinic in his charge, he distributes on every occasion small boxwood medallions containing a crystal of iodin in waxed paper. Without waiting for the etiology of goiter to be cleared up, the marvellous and rapid action of preparations of iodin in homeopathic doses on the diffuse goiters of young pigs, young dogs and young children should be utilized in arresting the progress of the goiter and warding it off in others. The only thing is to warn the public and pharmacists of the dangers of iodin medication when not properly managed.

44. **Eczema.**—Lewandowsky concludes his historical and clinical study of eczema by defining it as the result of a congenital or acquired hypersusceptibility of the skin to irritations of the most diverse kinds, acting on the skin from without or from within. Every case in which an eczema can be traced to a certain definite irritation acting from within is of essential importance, to science, and the reliance here must be mainly on the observations of practitioners. The experts in medical chemistry may then determine the substances circulating in the blood which induce the excessive susceptibility, and seek to reproduce with them the eczema in other subjects. Lewandowsky is professor of dermatology at the University of Basel, and he advances this hypothesis as to the nature of eczema as the one that to date best conforms to the known facts.

47. **Asthma in Children.**—Planta reports that seven years of additional experience have confirmed his previous statements as to the value of mountain climate in treatment of asthma in children, especially those of the exudative diathesis type. He practices at St. Moritz and gives the details of twenty-one cases in children in his charge there. Over 38 per cent. have had no further attacks of asthma since their return to the lowlands, and 33 per cent. were materially improved. Five of the twenty-one children have had a return of the asthma since, but in all the children the general health improved remarkably. The asthma had developed between the ages of 2 and 6. One of the cured children is brought back to the mountains for two months each year. He has known of several instances in which children born with the exudative diathesis in the mountains developed asthma when the family moved to the lowlands, and the asthma disappeared when the child returned to a mountain climate.

48. **Ligation of Internal Jugular Vein.**—Stolz adds a fourth case to the three he has found on record in which ligation of the internal jugular vein had fatal consequences. Linser found evidences of insufficiency of this vein in 3 per cent. of 1,000 skulls examined, and this was five times more frequent on the left side than on the right. Stolz' experience suggests that when a tumor has been compressing the vein, a ligature can be thrown around it without apprehension, as a reliable collateral circulation must have developed. When this is not the case, he advises to clamp the vein and watch what happens in the circulation. If this looks threatening it is better to implant a segment from the saphenous vein after the resection rather than to ligate alone. In his case a cancer in the right side of the neck had been excised, with resection of the internal jugular. The face became cyanotic at once for a time, and the breathing became deep and slow; the man of 56 never regained full consciousness and died the fourth day.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 16, 1918, **39**, No. 39

50 *Epinephrin Cardiovascular Test. G. Ghedini.—p. 385.
51 Cysts in the Vagina. F. Bindi.—p. 387.

May 19, 1918, **39**, No. 40

52 Chemical Diagnosis of Picric Acid Jaundice. E. Pittarelli.—p. 395.

May 23, 1918, **39**, No. 41

53 Abscess in Abdominal Wall Simulating Enlarged Gallbladder. A. Cardarelli.—p. 405.

50. **Epinephrin Test of Functional Capacity of the Heart.**—Ghedini discusses the value of the information to be derived from the behavior of the heart after epinephrin has induced contraction of the peripheral vessels. The response may vary with the amount of epinephrin already circulating in the blood, also with the degree of arteriosclerosis that may be present, and with other conditions. The response may thus vary widely in different persons and in the same person at various times, giving misleading findings, some persons presenting a strong reaction and others none at all, even under apparently similar conditions. He shows, however, that by combining the test with careful investigation of the blood pressure and pulse before and after, a dependable oversight of conditions may be obtained, beyond anything to be realized with either method of examining alone. The Uskoff sphygmotonograph, the Pachon oscillometer with recording drum attachment, or other apparatus of the kind, used in connection with the epinephrin test, recording the findings before and afterward, provides an important means of estimating conditions in the cardiovascular apparatus. He adds that the epinephrin test is simple and easy, and seems to be harmless.

Policlinico, Rome

June 9, 1918, **25**, No. 23

54 *Treatment of Protozoan Diseases. T. Pontano.—p. 533.
55 Splenectomy for War Wound. I. Scalone.—p. 538.

June 16, 1918, **25**, No. 24

56 *False Aneurysm of the Carotid. P. Gilberti.—p. 557.
57 *Treatment of Malaria. D. Giannelli.—p. 562.

54. **Varying the Technic in Treatment of Malaria and Other Protozoan Diseases.**—Pontano is instructor in pathology at the University of Rome, and for a year has been in charge of a hospital there to which are sent the soldiers returning with malaria from Macedonia. In about 11 per cent. of the cases it proved impossible to cure the malaria by the usual method, that is, by giving 2 gm. of quinin by the mouth daily for three weeks, with intermissions of four or five days between the weeks. He explains the various reasons which interfered at times with the systematic preventive use of quinin when the troops were sent to Macedonia. The men were supposed to be taking 0.60 gm. of quinin daily between April and November, but many did not get this systematic prophylaxis all the time. One reason for the nontaking or the nonabsorption of the drug was the epidemic of dysentery which preceded, by a month, the outbreak of the malaria epidemic in each of the two years of the campaign. From this extensive experience Pontano writes that the malaria parasites and protozoa in general are liable to become resistant to the specific drug given constantly by one route. Even increasing the dose manyfold gives no better results. But by changing the mode of administration, the drug then is able to act on the parasites with its pristine force. It is possible that the molecular composition of the drug becomes altered as it enters the organism by another route. A few small doses by subcutaneous or intramuscular injection may speedily conquer the malaria when it had proved refractory even to large doses long continued by the mouth. The same principle probably applies to all protozoan diseases. They may succumb to the same drug when its molecular composition has been modified by changing to another method of introduction.

56. **Paralysis of Recurrent Nerve from False Aneurysm.**—The traumatic false aneurysm from a war wound had induced paralysis of the recurrent and hypoglossal nerves and inability to swallow from homolateral paralysis of the uvula and paralysis of the lingual nerve. Gilberti opened the pulsating hematoma, cleared it of clots, and clamped the trunk of the spurting common carotid. The operation was concluded by ligating the common carotid and also the internal jugular vein. Apparently complete clinical recovery followed. Ligation of both artery and vein reduced both the arterial and the venous circulation together, and the circulation left, although reduced, is balanced.

57. **Treatment of Malaria.**—Gianelli quotes a popular saying to the effect that malaria in a soldier never gets cured, and adds that, unfortunately, this often is true. The lack of systematic quinin treatment is the reason for this, as the malarial soldier passes through so many hands. He urges that special malaria sanatoriums should be established in elevated positions not far behind the front, where the men could be given thorough treatment without delay, before the parasites get too firm a foothold and grow drug-fast. This would also prevent infection of the home regions by the malarial soldiers returning from the hotbeds of malaria in Macedonia and elsewhere.

Riforma Medica, Naples

May 25, 1918, **34**, No. 21

58 Abscess in Abdominal Wall Simulating Enlarged Gallbladder. A. Cardarelli.—p. 402.
59 *Traumatic Hernia of the Diaphragm. P. Guizzetti.—p. 404.

June 1, 1918, **34**, No. 22

60 *Fracture of Internal Epicondyle of Femur. G. Ferrarini.—p. 422.
61 *Treatment of Sciatica by Lumbar Anesthesia. C. Mancini.—p. 428.
62 The Diet and Certain Skin Diseases. D. Barduzzi.—p. 430.
63 Child Welfare Work in Italy. A. Anile.—p. 431.
64 *Care of Tuberculous Soldiers. C. Baduel and C. Mendes.—p. 438.

59. **Traumatic Hernia of the Diaphragm.**—Guizzetti reports hernia of the diaphragm in five soldiers, confirmed by necropsy. Two of the men lived one and eight years after the fall or stab wound causing the hernia. Then strangulation of viscera in the hernia proved speedily fatal. The site of the hernia was in the left pleura in these five cases, and in all he has found reported from war wounds. The liver protects the right half of the diaphragm. The laceration is always in the unsupported center. The colon was found in the hernia in each of his cases, the stomach in three, and the spleen, besides, in two.

60. **Fracture of Internal Epicondyle of Femur.**—Ferrarini describes the aspect of and symptoms from this typical traumatic lesion of the internal epicondyle of the femur. The epicondyle is tender and every step in walking is accompanied by pain in the inner side of the knee, and by a brusque muscular contraction, a defense phenomenon. Electric tests confirm that the distal attachment of certain muscles has been torn loose, especially the inferior fascia of the great adductor muscle.

61 **Lumbar Anesthesia in Treatment of Sciatica.**—Mancini remarks that the conditions at the advanced front amply explain the large number of cases of sciatica that are found constantly in the military hospitals. Treatment is mainly restricted to local injection of phenol, baths and electricity but the disturbances soon return as a rule after any or all of these. He has obtained much better and more durable results by inducing lumbar anesthesia. He injects 12 or 15 cg. of a 5 per cent. solution of novocain, introducing the needle in the third or fourth lumbar intervertebral space. The relief of pain is immediate and complete. The anesthesia lasts from forty-five minutes to two hours. This brings the anesthetic into direct contact with the roots of the injured nerves, as well as with their connections with the spinal cord. The relief from pain is more complete and more durable than when the anesthetic is injected into the spinal cavity. The anesthetic seems to have a favorable action likewise on motor and trophic disturbances. He has applied this treatment in pure sciatica and also in cases of pain in the sciatic and ischium region from disease or injury by a projectile. Of course the benefit is durable only in the absence of anatomic lesions along the sensory nerve, but even these seem to be favorably modified to a certain extent. Any anesthetic might do, but novocain or its equivalents have certain advantages. He adds a minute quantity of epinephrin to the anesthetic. In one case he injected by mistake nearly twice the intended dose of the anesthetic, but no harm resulted.

64. Summarized, July 20, p. 232, when it appeared elsewhere.

Rivista Critica di Clinica Medica, Florence

May 18, 1918, **19**, No. 20

65 *The Skin in Typhoid. A. Campani and F. Bergolli.—p 229. Commenced in No. 19, p. 217.

May 25, 1918, **19**, No. 21

66 Prescribing in Wartime. G. Coronedi.—p. 241.

June 1, 1918, **19**, No. 22

67 *Serotherapy in Meningitis. G. Marchetti.—p. 253.

65. **Skin Manifestations in Typhoid.**—Campani and Bergolli found rose spots more pronounced and more numerous in their cases of typhoid with a favorable outcome than in the graver cases. This suggests that they may be regarded as evidence of good reacting and defensive powers. Herpes was noted in twelve of the 350 cases. Desquamation was common, and the tendency to hyperkeratosis of palms and soles with yellowish discoloration—the palmo-plantar sign—was pronounced in the graver cases and in 90 per cent. of the fatal cases. There was also an occasional fetid maceration of the palms. This, with the other skin changes in typhoid, suggests that the skin in typhoid has an active eliminating function for the typhoid toxins, especially the palms of the hands.

67. **Serotherapy of Meningitis.**—Marchetti injected the antimeningococcus serum one day by the vein, the next day intraspinally, and continued the alternate injections in this way. Only one of the eleven patients died and this one was already debilitated by malaria. The general symptoms grew milder under this alternate treatment, the course of the cases averaging five days less than in the parallel series given intraspinal injections alone. The largest amount of serum used was 280 c.c., the average being 238 c.c. with 125 by the vein and 113 by the intraspinal route. The drop in the mortality from 53 to 9 per cent. was too striking to be merely a coincidence.

Tumori, Rome

May 18, 1918, 6, No. 1

68 *Dercum's Disease in Young Soldier. C. Martelli.—p. 1.
69. Cystic Tumor of Kidney. G. Buschi.—p. 18.
70 *When Is Cancer Operable? J. W. Vaughan (Detroit).—p. 46. G. Fichera.—p. 53.
71 Action of Sarcoma Autolysates on Rat Sarcoma. B. Morpurgo.—p. 55. G. Fichera.—p. 58.

68. **Adiposis Dolorosa in Young Soldier.**—The symmetrical and extremely painful subcutaneous lipomas were accompanied by profound asthenia, the whole presenting the picture of typical Dercum's disease. The first lipoma developed about one month after the man had made an exceptionally violent effort to lift a heavy stone, during which his shoulder had become dislocated. The pain was intense and the previously robust young man grew weaker as more lipomas developed. They lay free in the subcutaneous adipose tissue and were easily removed. From study of this case and the literature, Martelli deduces that the cause is some upset in the balance of fat production, the result of multiple disturbance in the endocrine-sympathetic systems. It seems that the organism in trying to get rid of the resulting toxic products from this abnormal fat production localizes them in the form of these subcutaneous lipomas.

70. **When Is Cancer Operable?**—This is a translation of Vaughan's work published in THE JOURNAL, Dec. 8, 1917. He referred to Fichera's research and experiences with autolysates of cancer tissue in treatment of cancer, and Fichera here brings the subject and literature down to date.

Medicina Ibera, Madrid

March 21, 1918, 2, No. 20

72 *Strabismus. Marquez.—p. 341.
73 Aortitis with Tumor in Sternum. M. U. Sarachaga.—p. 342.
74 *Secondary Nephrectomy. C. Negrete.—p. 343.
75 Alcoholic Polyneuritis. C. Juarros.—p. 345.
76 Eczema Around Orifices. Sicilia.—p. 346.
77. *Titration of Antigen for Wassermann Reaction. J. P. Courtier.—p. 347.

March 30, 1918, 2, No. 21

78 *Remedies for Constipation. F. F. Martinez.—p. 369.
79 *Prolapse of the Urethra. A. Roldan.—p. 372.
80 *Experiences with Wassermann Reaction. Villapadierna.—p. 373.
81 Digestive Disturbances in Children. C. S. de los Terreros.—p. 378.

72. **Strabismus.**—The special features of the case reported by Marquez are that after operative correction of the convergent strabismus of 30 degrees in the young man, the surgical measures were supplemented by exercises to train the eyes in direct vision. These orthoptic exercises complete the task begun by the operation on the eye muscles in severe cases. In mild cases they may alone, with atropin and glasses, correct the squint, thus avoiding the necessity for an operation. (He does not describe the orthoptic measures used.)

74. **Tuberculosis of the Kidney.**—Negrete relieved the threatening symptoms from the tuberculous pyonephrosis by nephrostomy and rinsing out the suppurating cavity. When the woman of 29 had improved under these measures, he removed the kidney, and this secondary nephrectomy was perfectly tolerated and the woman's health has been good since. He warns that tuberculosis of the kidney often presents bladder disturbances as the first manifestation. Later come polyuria, the urine limpid at first and then turbid, with slight hematuria not connected with exercise. Or hematuria may be the first sign of trouble. No time should be wasted in trying to cure the bladder disturbances as the trouble is a renal cystitis. An early diagnosis of renal tuberculosis permits early nephrectomy. To wait for a spontaneous or medical cure is to invite disaster. On the other hand, after removal of a kidney with not very far advanced tuberculosis, tuberculous lesions elsewhere may retrogress, especially incipient involvement of the other kidney.

77. **The Wassermann Reaction.**—Courtier insists that the antigen should be titrated for the Wassermann test. To fix the quantity of complement regardless of the specific power of the antigen exposes to error. He describes a simple method for titrating the antigen, using five sets of tubes.

78. **Habitual Constipation.**—Martinez, in discussing habitual constipation, remarks that the action of purgatives is much more complex than is generally realized. They inflame the bowel, with consequent exudation, they stimulate the digestive glands to hypersecretion, and there is desquamation of the bowel mucosa, along with other phenomena which suggest that the purgative induces the formation of some substance that is carried to all points in the glands, muscles and nerves. A similar result can be attained with magnesium sulphate, he says, reporting excellent results from its use. It modifies conditions so that the habit of constipation seems to be broken up. He gives the magnesium sulphate in a 25 per cent. solution, using ampules containing 0.5 gm. of the drug in 2 gm. of distilled water, and injects one ampule a day, continuing for from six to ten days as a rule in the inveterate cases. In the mild cases one or two injections may suffice, or half the above dose may be given. As a rule, by the sixth or tenth day even the most inveterate constipation is broken up permanently. In exceptionally intractable cases he injected two ampules morning and night, in arm or buttocks.

79. **Prolapse of the Urethra.**—In a girl of 15 the prolapsed mucosa on one side of the urethra resembled a polyp, and it was cauterized. In an older woman the prolapse was annular and extensive, requiring resection of a ring of mucosa. In both cases Roldan insisted on preliminary treatment of concomitant vaginitis as the first step, as infection and hypertrophy of the mucosa are the main factors in the prolapse.

80. **Experiences with the Wassermann Reaction.**—Villapadierna has applied the original Wassermann technic and the simpler Noguchi method, as modified by Azua, and regards the latter as sufficiently exact for all practical purposes. Only when a decision as to marriage or other important question requires extra precision is it necessary to apply both technics.

Prensa Medica Argentina, Buenos Aires

April 20, 1918, 4, No. 32

82 Rôle of the Dispensary in the Campaign Against Tuberculosis. G. A. Alfaro and R. Iriborne.—p. 463.
83 *Thyroid Deficiency Inducing Congestions. J. C. M. Fournier.—p. 463.
84 *Gastric Ulcer plus Polyneuritis. C. B. Udaondo.—p. 465.
85 Teaching of Pediatrics in Medical Schools of Argentina and Europe. M. Acuña.—p. 471.

83. **Thyroid Deficiency of Congestive Type.**—Summarized, July 27, page 321, when published elsewhere.

84. **Gastric Ulcer with Polyneuritis.**—Udaondo's patient was a man of 45 who developed polyneuritis in the course of his florid gastric ulcer. The pains were worse when the gastric ulcer disturbances were most pronounced, and they subsided as the latter improved. Klippel and Weil reported in 1909 three cases of polyneuritis in the course of gastric ulcer, and others have been published since. The ulcers in all the cases had had a protracted course, and the spontaneous pains in the limbs and in muscles were irregularly intermittent. The nerves and muscles involved are sensitive to pressure and there may be some motor disturbance, to lax paralysis. The tendon reflexes are absent or much attenuated, but the muscles show no signs of atrophy, and as the ulcer heals the polyneuritis disappears.

Revista de Medicina y Cirugia, Havana

May 10, 1918, 23, No. 9

86 *Trachoma. C. E. Finlay.—p. 233
87 *Laryngeal Tuberculosis in Cuba. J. Aleman.—p. 238.
88 *Sarcoma in Nasopharynx. H. Segui.—p. 241.

86. **Trachoma.**—Finlay queries whether the different varieties of what is called trachoma in Cuba are different forms of a single disease or whether different diseases are not being grouped under this heading. He presents arguments on both sides, without coming to any conclusion although personally he inclines to the single theory.

87. **Laryngeal Tuberculosis in Cuba.**—Aleman found laryngeal tuberculosis in about 17 per cent. of 1,597 cases of tuberculosis examined during 1915. He cites statistics from the literature which show throat or nose lesions with pulmonary tuberculosis in from 13.8 to 97 per cent. This wide variation casts some doubt on the correctness of the observations.

88. **Sarcoma of the Nasopharynx.**—Segui comments on the grave prognosis of these tumors as they develop so insidiously that they are usually far advanced when a physician is consulted. In the two cases he reports, in men of 28 and 52, the younger man complained of headache and epistaxis, and a tumor was found filling the nasopharynx. He refused an operation and died in three months. There were no symptoms in the other case except the sensation of obstruction in the nose. The tumor filling the right nasopharynx was removed but the man returned six months later with intracranial propagation of the sarcoma, speedily fatal.

Revista de Medicina y Cirugia Practicas, Madrid

May 28, 1918, **120,** No. 1508

89 Treatment of Femoral Hernia through Inguinal Canal. J. Blanc y Fortacin.—p. 228.

Semana Medica, Buenos Aires

Dec. 20, 1917, **24,** No. 51

90 Tuberculous Glands in the Neck. C. R. Lavalle.—p. 685.
91 *Climatic Factors in Treatment of Tuberculosis. P. Galatoire.—p. 689.
92 Hygiene of the Eyes. P. B. Ferro.—p. 706.
93 *Cancer in Buenos Aires. E. R. Coni.—p. 711.
94 Welfare Work in Buenos Aires. E. R. Coni.—p. 714. Cont'n.

March 21, 1918, **25,** No. 12

95 Serotherapy and Vaccine Therapy in Various Diseases in Children. R. Cabrera and T. Scannavino.—p. 309.
96 Gastro-Intestinal Symptoms Masking Appendicitis. J. C. Berri.—p. 324.
97 *Necessity for Code of Medical Ethics. E. R. Coni.—p. 326.
98 Pseudo-Appendicitis as Manifestation of Serum Sickness. G. Giacobini.—p. 327.
99 The Campaign against Tuberculosis. C. Ferreira.—p. 327.

91. **Climatic Treatment of Tuberculosis.**—Galatoire's long review of the climatic factors and opportunities for treatment of tuberculosis in Argentina concludes with the statement that the mountain climate is unquestionably an important aid in the treatment of pulmonary tuberculosis, but that a patient should have it impressed on him that he must apply at once on arrival to some local physician. Constant medical oversight at first is indispensable. The measures recommended in his home town or the patient's usual customs, or the customs of an ordinary outing, may prove directly injurious if applied at a higher altitude.

93. **Cancer at Buenos Aires.**—Coni's statistics show that Buenos Aires with a cancer mortality of 8.55 per ten thousand inhabitants is the sixteenth in the list of twenty-four large cities, with Copenhagen and Berlin at the top, with cancer mortality of 16.13 and 13.35, and Chicago and New York the eighteenth and nineteenth, with 7.89 and 7.71.

97. **Code of Ethics.**—Coni relates that for years he has been lauding the Code of Ethics of the American Medical Association, urging that it be adopted officially by the Buenos Aires Medical Association and by the faculty of the medical school, but no steps have been taken as yet in the matter. He here repeats his urgent appeal, saying: "This Code of Ethics comes from the principal medical association of the continent of America, an authority the less to be suspected because it comes from an illustrious and friendly people, educated in the shade of institutions free like our own, and who know how to subordinate the liberty of the citizen to the principles of justice and honor, whatever his standing in the social order. It is not a new code which the American Medical Association has adopted; it is the conjunction of maxims and precepts recognized by eminent physicians the world around. It is only morally binding on the members of the Association, but they impose it on themselves as an undeclinable and inherent duty in the practice of their noble profession.

"The precepts which the American Medical Association makes obligatory on its members are equally morally obligatory on all physicians who appreciate their own dignity, respect the dignity of others and consider our profession a sacred trust, not merely a lucrative occupation. These precepts are based on sound principles of universal morality, justice, loyalty and consideration for one's neighbor, which are the same for all the peoples in the world." Coni adds that in his days as a medical student, he never heard any reference from the teachers to medical ethics, but since then one of the professors of legal medicine has included a few precepts of medical ethics in his course. The Academy of Medicine of Venezuela is discussing at present the adoption of a code of medical ethics, and it is rumored that when a satisfactory code has been drawn up, the central government will enforce it. Coni reiterates in conclusion that the time has come for something of the kind to be inaugurated in Argentina, as lately a certain number of physicians have stooped to practices which degrade the high character of the profession down to the level of a sordid business.

Kitasato Archives of Experimental Medicine, Tokyo

May, 1918, **2,** No. 1

100 *Action of Sensitized Cholera Vaccine. K. Shiga, R. Takano and S. Yabe.—p. 1. In German.
101 Cholera Sero-Vaccine. S. Yabe.—p. 13. In German.
102 The Processes of Immunization as They Occur in Subdural Cavity. R. Takano.—p. 43. In English.
103 Glycerinated Cattle Plague Vaccine. C. Kakizaki.—p. 59. In English.
104 Sensitized Plague Vaccine and Its Practical Application. T. Kitano and K. Sukegawa.—p. 67. In English.
105 Technic for Intravenous Injection of Small Animals. K. Shiga.—p. 87. In German.

100. **Sensitized Cholera Vaccine.**—The research on rabbits and guinea-pigs reported seems to show that the serum of a vaccinated animal has a protecting power when injected into another animal. It is readily and rapidly absorbed and induces only very weak reactions. When an animal is immunized by vaccination, the cells acquire a tendency to secrete antibodies. The essential active immunity is thus a cell phenomenon; the antibodies generated and passing into the blood are only a supplementary phenomenon to this.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

Aug. 31, 1917, **18,** No. 2, German Edition

106 *Causes of Action of Instilled Drugs on the Eye. N. Kumagai.—p. 103.
107 Absorption by the Cornea. N. Kumagai.—p. 161.
108 *Anemia with Aplastic Bone Marrow. T. Irisawa and K. Koga.—p. 179.
109 *Anaphylaxis with Serum Albumin. Y. Kato.—p. 195.
110 Antipepsin of Stomach Wall. K. Katayama.—p. 235.
111 *Peptic Disturbances in the Stomach. K. Katayama.—p. 253.
112 *Extrasystoles of the Auricle. S. Osato.—p. 265.

106. **Causes of Action of Instilled Fluids in the Eye.**—Kumagai determined the albumin content of the fluid and the pressure in the rabbit eye, and studied them in turn under the influence of atropin, of eserin, pilocarpin and epinephrin. He determined further that the aqueous humor seems to be derived from the iris.

108. **Anemia with Aplastic Marrow.**—The young man was robust, and except for two attacks of digestive disturbance in childhood and in 1913 seemed constantly well. Early in January, 1918, headache and lassitude, chills and vertigo compelled him to stay in bed, and he died in March. The necropsy findings confirmed the diagnosis of primary aplastic anemia. The color index increased above normal parallel to the progress of the disease, from 0.64 the second month to 1.73 the third month, just before death.

109. **Anaphylaxis with Serum Albumin.**—Kato has been studying means to deprive serum of its possible anaphylactic properties. The sensitizing and anaphylaxis-inducing power of the serum of a healthy horse was subjected to various tests, first separating out the different albumins in the serum and testing them separately, comparing the findings with the literature on the subject. Thirty experiments on guinea-pigs are described. When the latter were sensitized with any of the separate albumins from the serum, they reacted with phenomena of anaphylaxis to any of the albumins indiscriminately, but the reaction was strongest to the albumin used in the sensitizing. The water insoluble globulin seems the most active, the water soluble globulin next; the whole serum next, and the precipitate obtained with ammonium sulphate next.

111. **Gastric Ulcer in Japan.**—Katayama found open ulcer in the stomach in 4.3 per cent. and healed ulcer in 3.98 per cent. in 3,942 cadavers at Tokyo, including 574 cadavers of

children under 16. This is a total of 7.96 per cent. which is a larger proportion than is recorded in European and American cities. It is larger than the 5 per cent. credited to England and Germany, but is less than half of Denmark's 16.7 per cent. The gastric ulcer had been responsible for the death only in twenty-seven of the total 314 ulcer cadavers. There was concomitant pulmonary tuberculosis in only 24.2 per cent.; persisting thymus in seven; signs of syphilis in twenty-nine, and hypertrophy of the suprarenals in twenty-nine. Arteriosclerosis was evident in 45.26 per cent. and valvular disease in 21.94 per cent. of the 3,942 cadavers, but the relative proportion was less in the ulcer cases. In a fourth of the ulcer cadavers there were multiple ulcerations. Males predominated in the ulcer cases, but stenosis of the pylorus was found in only four of the 314 ulcer cadavers. The ulceration was usually on the lesser curvature, next in frequency on the pylorus, fundus and corpus; the cardia and greater curvature were rarely affected.

112. **Auricular Extrasystoles.**—The auricular extrasystoles in the man of 68 seemed to start close to the sinus.

Mededeelingen van den Burg. Geneesk. Dienst, Batavia

1917, No. 6

113 *Rôle of Field Rat in Spread of Plague. L. Otten.—p. 1.
114 Biology of Small House Rat. L. Otten.—p. 82.
115 *Duration of Infectiousness of Indian Rat Flea. L. Otten.—p. 120.

113. **The Field Rat and Plague.**—Otten devotes eighty pages to description of his investigations on the field rat and its fleas as factors in the epidemiology of plague. Other writers have reported negative results from such investigations, but his examination of 2,111 field rats showed fleas on 565, and that more than half of the fleas were of the cheopis species. His research indicates that the field rats get this flea from the house rats, but that this species dies off out of doors when inclement weather arrives. The ahalae flea is the regular outdoor flea that infests the field rat the year around. The field rat is susceptible to plague, but Otten does not ascribe any importance to it in the spread of the plague from village to village. He adds that the importance of human traffic in the broadest sense of the term in the spread of plague, both short and long distances, is confirmed anew by his research. He gives thirty-five tables of his research in detail, and remarks that the reason his findings differ from those previously reported is probably because others have left the collections of the field rats and their fleas to the natives, while Otten superintended every step of the work in person in dozens of different villages. The article is in parallel columns of Dutch and English.

115. **Duration of Infectiousness of Rat Flea.**—In connection with the research mentioned in the preceding abstract, Otten found that forty-three days was the longest period in which the rat flea was capable of transmitting plague. This long protracted infectiousness throws new light on the mode of transmission of the plague by means of human traffic.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 27, 1918, **1**, No. 17

116 *Polycythemia with Heart Defect. K. A. Rombach.—p. 1144.
117 Tonsillectomy. I. J. van den Helm.—p. 1152.
118 *Amebiasis of Urinary Passages. S. Koster.—p. 1158.

May 4, 1918, **1**, No. 18

119 *Cirrhosis of the Liver. N. P. van Spanje.—p. 1221.
120 *The Campaign against Tuberculosis. C. J. Brenkman and L. A. Faber, Jr.—p. 1240.
121 *Slow Sepsis. M. W. Scheltema.—p. 1242.

116. **Polycythemia with Heart Defect.**—The little girl over 4 years old had typical erythemia with cyanosis and enlargement of the spleen and hemoglobin of 140 or 150 per cent. (Sahli instrument). The reds numbered 7,608,000 to 6,000 whites. Roentgen examination showed that the whole heart was unusually far over on the left side, and that the pulmonary artery cast a protruding shadow, suggesting a patent duct of Botallo, confirmed by the electrocardiogram. Rombach theorizes that this defect prevents proper oxygenation of the blood. The imperfectly oxygenated blood stimulates the spleen to extra functioning, and this in turn has a stimulating action on the blood-producing organs, which explains the excessive numbers of red corpuscles. This assumption is sustained further by the numbers of "mast cells" in the blood. The child's sister of 21 also has high hemoglobin percentage, 105, and 4,664,000 reds, and the mother and the grandmother are said to have "looked blue" at times.

118. **Amebiasis of Urinary Passages.**—Koster has found fourteen cases of amebic cystitis or pyelitis on record. In the five bladder cases the symptoms were tenesmus and hematuria; Craig found at necropsy a rectovesical fistula in his case. The ameba in its vegetative form dies speedily in an acid medium; this aids in locating the focus in the bladder or pelvis according as the reaction is acid or alkaline. In a case described, the man of 44 had evidently been a chronic carrier of the ameba for nearly nine years after an attack of acute amebic dysentery in the tropics. Then came another acute attack, followed by pyelonephritis and then by cystitis. The ameba was responsible for both in turn. Under emetin, 0.03 gm. twice a day for five days, the urine was freed of amebas and cysts. The bladder had been given local treatment with silver nitrate, followed by acetate of lead, changing soon to 10 per cent. tannin, as tannin is said to have a specific action on the ameba.

119. **Cirrhosis of the Liver.**—Van Spanje relates that among the 52 men and 30 women in his service with cirrhosis of the liver, there were 9 of syphilitic and 8 of echinococcus origin. During the same period there were 143 men and 112 women with cancer of the liver. Including the gastric cancer cases, there were 296 men to 196 women in the cancer cases, although the women patients in general much predominated. Abuse of alcohol was evident in about 90 per cent. of the cirrhosis cases. Many had the habit of drinking liquor on an empty stomach in the morning. But in some of the cases alcohol could not be incriminated. The early complaints of loss of appetite, oppression in the abdomen, scanty urine and lassitude, do not point to the liver, but he was impressed with the fact that the beginning of trouble was so often stated to date from a period of severe grief or worry. In two of the cases of obscure origin the spleen was much enlarged, and its capsule had become thick and hard and adherent to the omentum and this to the abdominal wall. Nature had thus done omentopexy, but no favorable influence from it on the course of the disease could be detected, although, except for the absence of anemia, the case suggested Banti's disease.

Some cases ran their course without hemorrhage; in others there was fatal vomiting of blood, or melena, even before ascites had developed. In one man of 48 there was repeated and extensive bleeding from an artery in the cheek. One man of 53 had had two attacks of delirium tremens with an interval of sixteen years. The second attack was soon followed by hematemesis, the man vomiting about 5 liters of blood in four days. The liver and spleen were enlarged but there was no ascites till nearly five weeks later. In another case severe hematemesis was the first symptom; then came a latent period of eight years and then a fatal hematemesis. The liver was not palpable but there was urobilinuria. Necropsy revealed atrophic cirrhosis of the liver. In a number of the cases the cirrhosis of the liver was a necropsy surprise, the patient's complaints not having suggested liver trouble. Liver disease may rouse a slumbering tuberculous process; on the other hand, a tuberculous process may start or aggravate cirrhosis of the liver, especially when the tuberculosis is in the peritoneum.

The benefit from copious diuresis was illustrated repeatedly in his cases. In one elderly woman one drug after another was tried without effect, including digitalis, besides restriction of fluids and warm baths. But striking benefit followed a course of small doses of calomel, 25 mg. with 400 mg. milk sugar, three times a day. The output of urine increased from about 500 c.c. to 3 liters a day and then averaged under the calomel 1,800 c.c. In several cases discovery of the echinococcus, gallstones or syphilis permitted effectual treatment.

120. **The Campaign Against Tuberculosis.**—Brinkman and Faber deplore the lack of systematic cooperation between family physicians and the medical directors of sanatoriums,

The sanatoriums are filled with the tuberculous for whom there is no prospect of actual cure by this means, thus crowding out those who would really benefit by it. On the other hand, the precariously won benefit is lost in a few months after dismissal from the sanatorium and return to the former conditions of life.

121. **Slow Endocarditis or Slow Sepsis.** — Scheltema describes a case in a young woman which seemed to be of the slow endocarditis type as there were fever, anemia, enlargement of the spleen and progressive loss of flesh, pains in certain bones and the *Streptococcus viridans* in the blood. The whole syndrome had been ushered in with an attack of influenza. This sepsis lenta kept up with fever for 134 days. Scheltema was unable to determine whether the heart murmurs were the result of endocarditis or of the anemia, but their disappearance when the anemia subsided confirmed their comparatively harmless nature. The euphoria all through the case was remarkable, as also the early recovery of comparative strength when the patient got up after her 134 days of fever in bed. The onset of the fever had been slow and gradual; at first it was remittent and kept within moderate range, except during a period when there was involvement of the right sciatic nerve and an attack of periostitis. The temperature ran up to 41.4 C. during the neuritis and during the periostitis. Each lasted only a few days. Some red and tender spots developed on the legs and also petechial spots. His treatment was with methylene blue, 200 mg. in capsules three times a day, followed in an hour with a large dose of hexamethylenamin. The patient felt better under this treatment, and the temperature displayed a tendency to drop. When a gastro-enteritis developed, with high fever, this treatment was suspended. Then he gave iodin, 4 drops tincture of iodin in a glass of wine three times a day, followed an hour later with 0.5 gm. quinin in a wafer. The fever disappeared after three days of this, falling by lysis, and the patient felt that she was cured. The periostitis and the papulous red spots had subsided when painted with iodin —another reason for trying this drug internally.

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122 Gibes at Physicians in the Classics. J. L. Heiberg.—p. 855.
123 *Dystrophy and Xerophthalmia in Infants. II. C. E. Bloch.—p. 868. Conclusion.
124 *Unit for Standardizing Digitalis Preparations. M. Krogh.—p. 874.
125 Strength and Keeping Properties of Digitalis Infusions. M. Krogh. —p. 875.

123. **Xerophthalmia and Dystrophy in Infants.**—The preceding instalments of Bloch's communication were summarized in these columns, July 27, p. 322. He here theorizes to explain the mechanism of the xerosis which developed among others in eleven children in an institution in his own charge, the infants being supposed to have an unexceptionable diet. Three factors seem to have been operative, a deficiency in fat in the diet, the period of extra growth, and the predisposing influence of a chronic infectious disease. His charts show a surprising concordance between the development of the eye trouble and the period of extra growth, that is, from March to August. From August to December is the period of minimal growth, and from December to March is the phase of moderate growth. These three periods of children's maximal, minimal and moderate growth were first determined by Malling-Hansen but they have been confirmed by others. The xerophthalmia in Bloch's sixty-three cases never developed during the minimal period of growth.

The three factors form a vicious circle: the lack of fat in the diet interferes with the proper development of the child and reduces its resisting power to infections while predisposing to xerosis of the conjunctivas and cornea. The xerosis develops predominantly among infants fed on separator milk, from which the lipoid elements have been centrifuged out, or if they get whole milk it has been boiled so thoroughly that the lipoid elements have been denatured. The reason why these disturbances are more common in Denmark than in other countries must be because Denmark is a dairy country, devoted to making and exporting butter. The xerophthalmia retrogresses at once, if irreparable lesions are not already installed, when fat is given the infants, especially cod liver oil, but also cream, butter, eggs or other foods containing the lipoid elements not denatured by long cooking. Xerophthalmia, he adds, is probably the main cause for the large number of blind children in Denmark. The cases of blindness of gonorrheal origin in infants are growing constantly less numerous.

124. **Standardization of Digitalis Preparations.** — Krogh suggests as the unit of physiologic action the lowest concentration of a digitalis preparation which arrests for one minute or more the spontaneous rhythm of the isolated heart of a frog.

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126 *Sensibility of the Bones to Pain. G. Nyström.—p. 237.
127 *Pain as Symptom of Fracture. G. Nyström.—p. 257.
128 *Nitrogen-Poor Diet in Nephritis. N. O. Nilsson.—p. 295.
129 *Ethylhydrocuprein (Optochin) in Pneumonia. A. Wallgren.—p. 308.

126. **Sensation of Pain by Bone.**—Nyström reviews what has been written on the sensibility of the skeleton, and describes experiences in thirteen cases of operations on bones in young and old of both sexes, including a case of sarcoma of the tibia in a girl of 9. He also experimented on himself, having a surgeon expose the tibia and bore into it at two points, above the middle, and again near the malleolus. His findings were constantly concordant, to the effect that the periosteum is richly supplied with pain nerves, but the bone tissue below seems to be entirely nonsensitive. The marrow has scanty pain nerves; the sensation from them is more an ache, and this is induced only by action over quite an area. A single prick is rarely felt. The cartilage of joints and the epiphyses are also free from pain nerves.

127. **Pain with Indirect Pressure as Symptom of Fracture.** —Nyström gives illustrations of the findings in 100 cases of fracture and several cases of sprains, etc. when the bones were pulled lengthwise or to the side or pushed in, and the resulting sensations compared with the roentgen findings. The soft parts share in the production of the pain, and the findings generally are not specific, but certain instructive points seem to be brought out by his research. Among them is that no pain was induced in this way when the fracture was not complete and there was merely a fissure or infraction. Also with a transverse fracture without dislocation of the stump. The absence of pain with these maneuvers thus does not exclude fracture, but testifies that it is incomplete or in a good position. Pain speaks in favor of a probable fracture when a long bone is involved. The bones of the hand and foot are generally painful on indirect pressure whatever the injury.

128. **Nitrogen-Poor Diet in Nephritis.**—Nilsson compares the experiences in this line at the University medical clinic at Upsala with recent literature on the diet in nephritis, including a number of American articles. His patients were given about 2,000 calories a day, with never over 40 gm. albumin, and usually less than this. This made it necessary to reduce milk to 50 gm. a day, but butter and sugar were allowed freely. The experiences are too few for a decisive judgment, and it is evident that the type of the nephritis determines the prognosis. At the same time, the parallelism between the rise and fall of the residual nitrogen in the blood and the aggravation and subsidence of severe symptoms, and the improvement in some of the cases as the residual nitrogen dropped while the former condition returned on resumption of nitrogen foods—all these suggest the advantage of a nitrogen-poor diet in renal disease. Close supervision is necessary, and care in preparation of the food to keep the appetite good.

129. **Ethylhydrocuprein (Optochin) in Pneumonia.**—Wallgren reports that the experiences in his nine cases were disappointing. Three of the patients died. He cites the figures from seventeen writers with a total of 268 cases in which the ethylhydrocuprein was given in the first three days, with 8 per cent. mortality and amblyopia in 7 per cent. In a further series of 134 cases the ethylhydrocuprein had not been given till after the third day. The mortality was 19 per cent. and amblyopia developed in 4 per cent.